

**Adolescent Mental Health and Mental Health Services:  
A Mixed Methods Investigation**

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## Declaration

I, Meaghen Quinlan-Davidson, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Date: 06/04/2022

Meaghen Quinlan-Davidson

## Abstract

Mental health symptoms largely emerge during childhood, adolescence, and young adulthood, with estimates suggesting that by 25 years of age, 62% of all mental health disorders have appeared. These conditions are the largest contributors to the burden of disease during adolescence (10-19 years), and are exacerbated in resource-limited environments where the majority of the world's adolescents live.

Adolescent mental health is influenced by (i) their needs (mental health problems; risk and protective factors; and social determinants); and (ii) actions through mental health services; structural (policies) and the community (multisectoral strategies).

In São Paulo city, Brazil, the site of this thesis, the prevalence of common mental disorders among adolescents (15-19 years) was estimated at 13.2% in 2015. Meanwhile, levels of social inequality, violence and poverty are high. No study to date has been conducted in São Paulo investigating adolescent mental health needs and how health services are responding to these needs, particularly in limited resource and violent neighbourhoods. This mixed methods thesis bridges this gap and aims to provide an opportunity to better understand how adolescent mental health services are delivered and responding to adolescents' mental health needs within this context.

The study involved a systematic review of the global literature on quality in adolescent mental health services, identifying aspects and challenges to quality in adolescent mental health service provision. It also involved a secondary data analysis of adolescents (n=2,702) in secondary schools across São Paulo to investigate mental health needs among adolescents and how these needs relate to the local contexts within which quality in mental health service is provided. Finally,

semi-structured interviews among health care providers (n=45) were conducted in limited-resource and violent settings in south west São Paulo city to explore providers' perception of quality, barriers and facilitators to the provision of adolescent mental health services in primary and secondary facilities. The analysis and interpretation of findings led to the evaluation of potential interventions, including the standardisation of quality and methods to measure quality; the conceptualisation of a navigation pathway to quality adolescent mental health services; policy implications that promote social support; and recommendations on better integration of primary health services in adolescent mental health care.

## Impact Statement

The thesis makes a number of contributions to the academic study of adolescent mental health and mental health services, particularly in low-resource and violent settings. The results generated from this thesis will be useful for researchers, policy makers and practitioners.

The thesis presents a study that has not been conducted before, systematically reviewing the evidence on quality in adolescent mental health services globally. The evidence generated from this study identifies a need for a standardised definition of quality in adolescent mental health care, and methods to measure quality. This will be useful for researchers and practitioners. Furthermore, it provides background and contextual information useful for policymakers.

The research shows the importance of social, individual risk and protective factors in adolescent mental health in an urban setting: namely, that social support is protective for adolescent mental health while exposure to community violence adversely affects the mental health of adolescents. This highlights the importance of promoting social support programmes in schools, communities and families. It also indicates a need for community violence prevention and intervention development and programmes. This will be useful for researchers, governmental and non-governmental organisations working within this field. This component included a formal academic visit to the University of São Paulo, strengthening the research links between UCL and Brazil, fostering new collaborations.

The thesis presents a study that has not been conducted before, exploring definitions of quality, and barriers and enablers to quality, in adolescent mental health services in low-resource and violent settings. As such, these results point to areas for improvement of mental health services, useful for practitioners. It also provides a

starting point towards defining quality in adolescent mental health services. Future research could test and refine interventions among adolescent service users and health care providers, developing a consensus on quality in adolescent mental health.

The current thesis presents a navigation pathway intervention within which adolescents access quality adolescent mental health care services, considering their social and economic realities. This will be useful for future research, refining and testing this pathway, involving the participation of adolescent service users, health care providers, health care managers, and local policymakers.

In addition, close relationships were established with the health care managers and providers in the low-resource and violent settings where the qualitative research was conducted. As such, a meeting will be held with these key stakeholders (the Health Secretary of the State of São Paulo, the Support for Scientific Development team at the Hospital Israelita Albert Einstein and representatives of local health services) to discuss the findings and how they can contribute to informing mental health services.

Findings from this research were central to the formulation of a proposal to develop a school-based intervention to prevent violence and promote adolescent mental health. This proposal, in which I am a co-Investigator, is currently being finalised in partnership with the University of São Paulo. The proposal will be submitted to the ESRC/FAPESP funding scheme.

## Dedication

*For my family, and especially, my mother.*

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## Glossary and Abbreviations

BHU	Basic Health Unit
BIC	Bayesian Information Criterion
CAMHS	Child and Adolescent Mental Health Services
CFA	Confirmatory Factor Analysis
CHA	Community Health Agent
CPA	Care Programme Approach
DALYs	Disability Adjusted Life Years
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders
ED	Emergency Department services
FHS	Family Health Strategy
FHSN	Family Health Support Nucleus
GP	General Practitioner
HCN	Health Care Networks
ICC	Intraclass Correlation Coefficient
IOM	Institute of Medicine
LGBTQ+	Lesbian, Gay, Bisexual, Transgender, Queer and others
LME	Linear Mixed Effects
LMICs	Low- and Middle-Income Countries
LR	Likelihood-Ratio
mhGAP	Mental Health Gap Action Programme
MOH	Ministry of Health
MRC	Medical Research Council
NCDs	Noncommunicable Diseases
NIH	National Institutes for Health
OECD	Organisation for Economic Cooperation and Development
OOPs	Out of Pocket Payments
PCC	Psychosocial Care Centres
PCCca	Psychosocial Care Centres for Children and Adolescents
PCCad	Psychosocial Care Centres for Alcohol and Drugs
PCN	Psychosocial Care Networks
PDEB	Practices Derived from the Evidence Base
PTSD	Post-Traumatic Stress Disorder
RCT	Randomized Controlled Trial
SBQ	Social Behaviour Questionnaire
SDS	Supported Discharge Service
SES	Socioeconomic Status
SP-PROSO	São Paulo Project for the Social Development of Children and Adolescents
TCPS	Targeted Child Psychiatric Service program
TF-CBT	Trauma-Focused Cognitive Behavioural Therapy
UCL	University College London
UHS	Unified Health System
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drugs and Crime
US	United States
WHO	World Health Organization
YLDs	Years Lived with Disability

## INTRODUCTION

In the sections below, a brief rationale for the current thesis is provided, with a description of the evidence. This is followed by the structure of the thesis.

### Why Study Adolescent Mental Health?

Adolescence is a formative and unique stage of life, characterised by social, emotional, cognitive and physical changes (1–3). It is at this time that health behaviours begin to crystallise, with the potential to impact an individuals' health and wellbeing across the life course (4). At the same time, relationships with family, friends and intimate partners become more complex. The adolescent's environment expands, as they gain greater independence, and engage in and navigate school, work and social contexts (5). According to the World Health Organization (WHO), adolescence is defined as the period between 10 and 19 years of age, youth as 15-24 years of age and young people 10-24 years of age (6). This doctoral thesis follows the WHO definition of adolescence.

According to the WHO (2001), mental health is “a state of wellbeing in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her own community” (7). Mental wellbeing is a multidimensional concept that contributes to positive behaviours and actions by adolescents, families and communities. It includes the ability to handle adverse experiences; one's own self-worth and the worth of others; affective balance; and the ability to reasonably think, perceive, and interpret situations and experiences (8, 9, 10).

Importantly, mental health symptoms largely emerge during childhood, adolescence and young adulthood (11–14). In a nationally representative United States (US) household survey of those 18 years of age and older in 2005, estimates suggested that by 24 years of age, 75% of adult mental health disorders have appeared, persisting into adulthood and across the life course (11,15). More recent estimates from a large-scale global epidemiological meta-analysis of 192 cohort, cross-sectional and prospective incidence studies have suggested that by 14 years, 18 years and 25 years of age, 34.6%, 48.4% and 62.5% of mental health disorders have appeared, respectively (16). Although the studies (11, 16) employed different methods, the meta-analysis conducted by Solmi and colleagues (2021) appears to be more representative of the global age of onset of mental health disorders. This is due to the number of studies reviewed and the inclusion of studies from developing and developed countries. Kessler and colleagues (2005) study was restricted to the US population only (11, 16).

It has been proposed to expand the definition of adolescence to 24 years of age (18), however, this expanded definition takes focus away from adolescents 10 to 19 years of age. The developmental changes and the mental health issues that arise for those 10-14 years of age are different from those 20-24 years. According to Solmi and colleagues (2021), the peak and median age of onset for any mental disorder was 14.5 years and 18 years, illustrating the importance and focus on this age group, as opposed to older age groups. They showed that specific disorders that peak during this age include: obsessive compulsive disorder (peak = 14.5 years, median=18 years); eating disorders (peak=15.5 years, median=18 years); stress disorders (peak=15.5 years); anxiety/fear disorders (peak=15.5 years) (16). The evidence

supports the importance of keeping the 10-19 year age frame, or at the minimum maintaining focus on this age group within adolescence.

Mental health conditions can have profound negative short- and long-term health, education, social and economic impacts, including early school leaving, homelessness, social isolation, violence, incarceration, substance misuse, chronic unemployment, exposure to unhygienic living conditions and lower life expectancy. These conditions are associated with high economic costs for families, communities and health systems (11–14) (19,20), and the consequences are exacerbated in resource-limited environments, where the majority of the world's adolescents live (21).

It has been argued that the persistence and severity of mental health conditions can be reduced through the implementation of early intervention and prevention efforts, leading to more favourable mental health outcomes during adolescence (22–25). A systematic review and meta-analysis of ten randomised controlled trials (RCT) showed that, compared to standard care, early intervention services for early-phase psychosis (or multicomponent treatment services that include medication and psychosocial interventions delivered by a multidisciplinary team and tailored to the needs of patients) was associated with improved mental health outcomes (26). Evidence on early interventions for other mental health conditions, however, is limited but growing. In a systematic review and meta-analysis of universal and targeted interventions to prevent depression in children and young people in developed and developing countries (27), results showed a small effect for targeted approaches to prevent depressive disorder and symptoms at post-, short and medium-term follow-up. No association was shown between universal prevention programmes and depressive disorders or symptoms. The results of the study, however, should be interpreted with caution due to the heterogeneity of findings and low-to-moderate

quality of studies (27). Other reviews have shown the positive effect of targeted interventions on reducing symptoms of post-traumatic stress disorder (PTSD), anxiety, depressive and behavioural disorders; as well as reducing substance misuse among children and adolescent students who score high on personality measures (27–32). Meanwhile, greater investigation is required on early intervention for bipolar disorder, due to a lack of clarity on the emergence and trajectory of this disorder (33). It should be noted that positive mental health is defined as an adolescent who is fully functional and experiences subjective wellbeing (29). Further research is needed on this topic.

Based on the above evidence, it appears there needs to be greater research on the impact of early interventions (universal and targeted) on adolescent mental health conditions, particularly for mood and bipolar disorders. At the same time, when developing and implementing early interventions, the role of the social determinants of mental health and individual risk and protective factors must be considered (23). However, adjusting and quantifying for the social determinants and individual risk factors associated with adolescent mental health conditions (such as exposure to community violence and poverty) is challenging, particularly in low-resource settings where there is a paucity of health resources (34). Adding to this is recent literature that argues a need for more refined interventions based on cognitive functioning, diverse symptom profiles or biomarkers (22, 35,36).

In addition, adolescents often experience a delay in treatment for mental health conditions, contributing to a larger burden of disease (22, 35,36). In fact, evidence has showed that the interval between symptom onset and treatment initiation during adolescence was approximately six years (35, 37). This is particularly salient in resource-limited environments, where adolescents are more likely to experience a

larger gap between the need for treatment and provision of mental health services, than their wealthier counterparts (38).

Services are not always effective in removing, treating or reducing mental health problems. The issue for adolescents is that they experience both a lack of access to services and a lack of access to effective treatments. As such, there is a need for not only available and accessible services to adolescents but also efficacious interventions specific to adolescents.

Relatedly, there has been limited financial investment in national health budgets and research on adolescent mental health needs and associated health responses, particularly in low resource settings (14, 39,40). One study analysed the development assistance for child and adolescent mental health (41); however, the quality of the data on adolescent mental health investments in the study was questionable. Limited financial investments could be due to a lack of adolescent mental health indicators and research in low- and middle-income countries (LMICs) that accurately represent the burden of adolescent mental health conditions (42). It could also be attributed to a lack of financial resources earmarked for adolescent mental health (41). Contributing to the lack of financial resources are subsyndromal conditions or substance abuse issues not captured by current health information systems, as well as adolescent mental health stigma and cultural conceptualisations of mental health which adversely impact access to services (42).

Adolescents living in LMICs and resource-limited settings are more likely to face challenging circumstances that require mental health care, compared to adolescents in wealthier environments (43). Longitudinal evidence showed that children and adolescents living in poverty experienced greater exposure to social risk factors and stressors, such as community violence, greater parental conflict, exposure to

substances, poor housing, crime and poor access to social and health services, compared to their wealthier counterparts; all of which were associated with poor mental health outcomes (44–52). Over time, these risk factors are correlated with stress and alterations in the brain's functioning (53), and long term, this is associated with poorer physical and mental health (54,55). There is scant evidence on interventions that have targeted social and individual risks and stressors and had a positive effect on the adolescent's mental health. One such intervention is the Communities That Care programme (52), which targeted violence reduction, substance abuse and risky behaviours among children and adolescents. As described in greater detail in section 1.3.1.2., an evaluation of this programme showed lower likelihood of substance abuse and antisocial behaviour among adolescents (52). There is greater need, however, for more interventions like this. Simultaneously, there is a lack information on how (if at all) health services meet adolescents' mental health needs and the quality of mental health service provision in these settings. This illustrates a significant gap in the literature and one the current doctoral thesis aims to contribute to. These topics will be explored in greater detail below.

## Thesis Structure

To this end, the results chapters of the current thesis are structured to investigate adolescent mental health needs and the provision of adolescent mental health services.

The thesis is organised as follows:

1. **Chapter 1** provides a background on adolescent mental health, focussing on the global literature and framing it within the study site of São Paulo city, Brazil. A

conceptual model on adolescent mental health needs and actions is presented, which is used to frame the organisation of the thesis. This is followed by the rationale for the PhD, and the aims and objectives.

2. **Chapter 2** describes the social, legislative, education and health system context of São Paulo city, within which all of the empirical research for the current doctoral thesis takes place.
3. **Chapter 3** describes the methods used in the doctoral thesis, including the study designs, data collection procedures and data analyses, as well as ethics approval and reflexivity statement.
4. **Chapter 4** presents the results of a systematic literature review, evaluating quality in adolescent mental health services globally, and identifying aspects and challenges to quality in adolescent mental health service provision.
5. **Chapter 5** investigates social support and gender as potential moderators of exposure to violence and internalising symptoms in a secondary data analysis of adolescents (n=2,702 adolescents) in secondary schools across São Paulo city, Brazil. This chapter seeks to explore the relationship between key social, individual risk and protective factors of adolescent mental health in São Paulo. The analysis supports the interpretation of what constitutes mental health needs among adolescents, and how they relate to the local contexts within which quality in mental health service is provided.
6. **Chapter 6** analyses health care providers' (n=45) definition of quality in adolescent mental health services in limited-resource and violent settings of south west São Paulo city, Brazil. This chapter explores providers' perception about adolescent mental health, the social and institutional context in which care is provided and how quality is defined in the face of constraints imposed by the local context.



7. **Chapter 7** is a summary of the findings and overall conclusions from chapters 4-6, considering evaluation of potential interventions and future directions for research on adolescent mental health. The chapter also includes recommendations for programmes and policies aiming to improve adolescent mental health.

## Chapter 1. BACKGROUND

This chapter provides an overview of the global literature on adolescent mental health. Data on adolescent mental health in São Paulo city, Brazil, where all of the empirical research for this doctoral thesis takes place, is also provided. A conceptual model on adolescents' mental health needs and actions is presented, within which the current thesis is framed. This is followed by the rationale of the PhD and finally the aims and objectives of the thesis.

### 1.1. Global Adolescent Mental Health

Current global estimates indicate that 14.1% of young people aged 10-24 years have a mental health disorder (56), with estimates ranging between 10% and 20% (21). In fact, young people (10-24 years) are one of the age groups with the highest prevalence of mental health conditions (16,57,58).

The most common adolescent mental health disorders are unipolar depressive disorders, anxiety disorders and self-harm (6). Mental disorders are the largest contributor to the overall burden of disease among young people (10-24 years) globally, accounting for 12.2% of disability adjusted life years (DALYs) and 22.6% of years lived with disability (YLDs) (18,56). Depressive disorders rank as the fourth highest contributor to DALYs in 10-14 year old adolescents (4.3%) and the third highest among adolescents 15-19 years (5.6%). Meanwhile, depressive and anxiety disorders rank among the top six contributors to YLDs for 10-14 year old adolescents (7.4% and 5.0%, respectively) and among the top five for 15-19 year old adolescents (11.2% and 5.8%, respectively) (59). In addition, estimates from a meta-analysis suggest that 16% of children and adolescents (2-18 years of age) develop PTSD after exposure to a traumatic event (60). This is higher than the prevalence of trauma-

exposed PTSD (5.6%) among individuals 18 years and older (61), pointing to the increased vulnerability of individuals during this stage of life. Adolescents living in resource-limited environments are at increased risk of depression, anxiety and PTSD (62–67) due to higher levels of exposure to risks and stressors within these environments, compared to their wealthier counterparts (68,69).

Mental health conditions are characterised by relapse and chronicity (68), with adolescents often not receiving the care they need (5). In fact, mental health conditions during adolescence may present as milder or subthreshold manifestations, the severity of which can increase over time (22). Evidence from longitudinal, cohort studies in the US and New Zealand have shown that anxiety and depression in adolescence are associated with adult internalising problems, while adolescent delinquent behaviour is associated with adult externalising problems (22,70–72). However, while most studies were conducted in developed countries among a majority White population, there has been a paucity of longitudinal evidence from developing countries. The limited evidence available is from Mexico, which showed similar results to the US and New Zealand studies (73,74).

Schaefer and colleagues (2017) investigated enduring mental wellness in a longitudinal cohort study in New Zealand spanning three decades, as there is limited evidence on the topic. Results showed that study participants who had not been diagnosed with a mental disorder across the study had more advantageous childhood temperament and personality traits, including greater self-control, fewer emotional difficulties and less social isolation, compared to those diagnosed with a mental health disorder. Furthermore, participants with enduring mental wellness were less likely to have a family history of psychiatric disorder compared to those diagnosed with a mental health disorder. By adulthood, those with enduring mental wellness had higher

life satisfaction, higher rated relationship quality and had attained higher educational and socioeconomic levels compared to those participants with a diagnosed mental health disorder (72).

## 1.2. Adolescent Mental Health in São Paulo city, Brazil

National estimates from Brazil suggest that 19.2% of adolescents experience mental disorders (56), while the prevalence of common mental disorders among adolescents (15-19 years) was estimated at 13.2% in São Paulo city in 2015 (75). In 2017, it was estimated that suicide ranked as the fourth leading cause of death among 15-29 year olds nationally, and as the third (9.0 per 100,000 15-29 year old) and eighth (2.4 per 100,000 15-29 year old) leading cause of death among males and females, respectively (76). Between 2006 and 2015, the suicide rate among adolescents (10-19 years of age) increased by 13% nationally (2.3 and 2.6 per 100,000 10-19 year olds) while in São Paulo city it increased by 27% (from 1.92 to 2.42 per 100,000 10-19 year olds) (77).

In Brazil, self-harm and violence were the leading cause of DALYs among 10-24 year olds, estimated at 23.1% of total DALYs; followed by mental health disorders at 14.7% of total DALYs among this age group. In the State of São Paulo, mental health disorders were the leading cause of DALYs (16.8%) followed by self-harm and violence (14.3%) among this age group. Meanwhile, mental disorders were the leading cause of YLDs nationally and in the state of São Paulo, estimated at 27.7% and 27.4% of total YLDs in 2019, respectively (56).

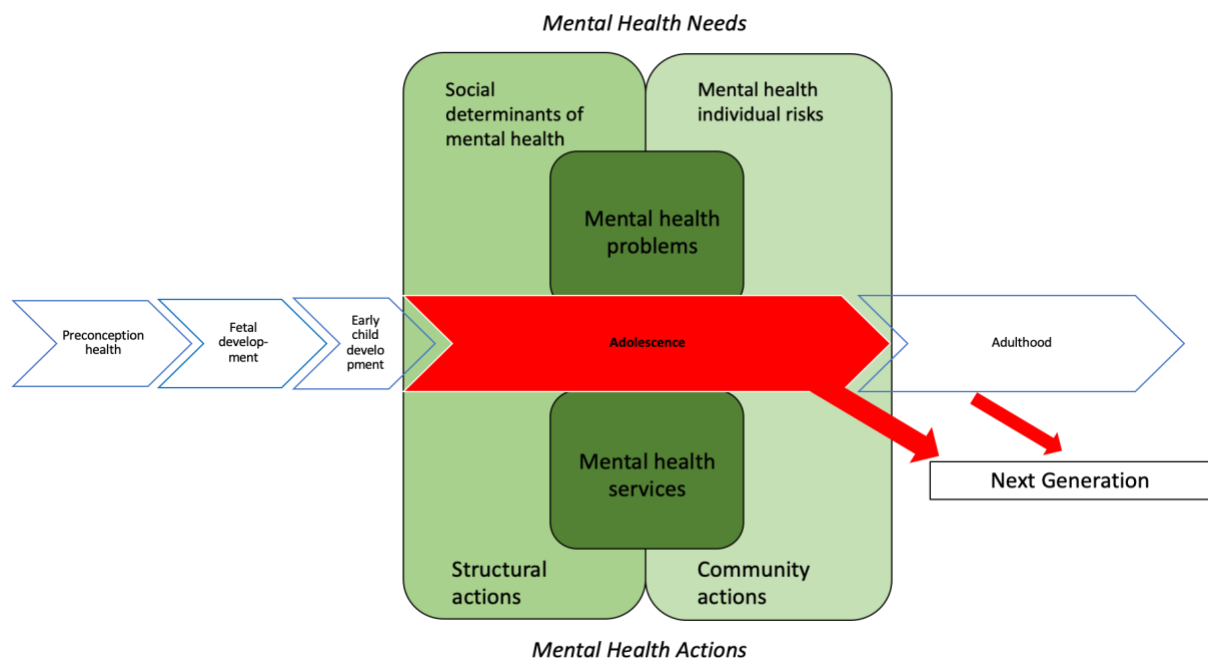
Recent studies in São Paulo show that exposure to violence during childhood and adolescence are significantly associated with mental health problems and substance use, especially among individuals living in low socioeconomic households

(78). In a cross-sectional school-based survey across São Paulo city among a representative sample of adolescents (n=2,702 12-18 year olds) in 2017, 44% and 50.3% of adolescents who were victims of violence and bullying, respectively, had elevated levels of internalising symptoms (depression, anxiety and self-harm). The study also showed that 70.5% and 66.2% of adolescents who suffered from violence and bullying, respectively, consumed alcohol at least once in the previous year, compared to 55.7% and 56.4% of those who did not report violence or bullying. Meanwhile 38.1% and 35.2% of adolescents who suffered from violence and bullying, respectively, reported binge drinking in the previous month, compared to 25.4% and 25.5% who reported binge drinking in the previous month but were not exposed to violence and bullying, respectively (79).

### 1.3. Conceptual Model for Adolescent Mental Health Needs and Actions

In 2016 The Lancet Commission on Adolescent Health and Wellbeing developed a conceptual model for adolescent health needs and actions (14). The current thesis adapts and builds on this conceptual model (figure 1), exploring the inter-relationships between adolescent mental health needs and mental health services, policy and interventions (14). These components will be examined in the sections below.

Figure 1. Conceptual Model for Adolescent Mental Health Needs and Actions



Source. Adapted from Patton GC et al. 2016. Our future: a Lancet commission on adolescent health and wellbeing. *Lancet* 387:2423-78.

Three dimensions drive adolescents' mental health needs: mental health problems; mental health individual risks during adolescence, such as perpetration or victimisation of violence; and the social determinants of mental health, including community violence and supportive environments. Adolescent mental health actions include mental health services; structural actions, such as policy and legislation; and community actions, including multisectoral strategies implemented through schools, churches, and local governments (14). Importantly, there is limited understanding about adolescent mental health needs and the actions and structures needed to promote adolescent mental wellbeing. This is attributed to the lack of investment in research to generate evidence-informed practice in this age group (14). The current thesis aims to address this gap.

The model also highlights the impact that adolescent mental health has on the next generation. Adolescence, as a stage of life, cannot be viewed in a vacuum. It is a critical developmental period for later adult health, social and economic outcomes and for future generations' health (80). Researchers argue that it is possible to investigate how life experiences, contexts and exposures in adolescence can lead to later outcomes in life and across generations (81–83). This is an interesting point and although important to highlight, this doctoral thesis will not explore life course exposures and outcomes, including the impact of the pre-conceptual period and earlier life periods on adolescent mental health or associated impacts on future generations.

#### 1.3.1. Adolescent Mental Health Needs

Patton and colleagues (2016) and Sawyer et al (2012) conceptualise adolescent health needs as the interaction between three components: (i) health conditions and contributors to adolescent mortality, which are influenced by (ii) the social determinants of health; and (iii) individual health risk and protective factors during this stage of life (2, 14).

An adolescent's brain development, their emotional and behavioural responses and cognitive processes are influenced by their physical, psychological and social needs (84). Neglect, trauma and poor care have been shown to adversely affect an adolescent's psychosocial skills, physical and mental resilience and healthy ageing (85,86). Mental health actions (explored in Section 1.3.2.) respond to adolescents' mental health needs, through the organisation and provision of services, policies and community actions.

Wright and colleagues (1991) conceptualise “need” as wants (felt) and demands (expressed). Health needs are conceptualised as wants and demands that extend beyond the biomedical model of health and encompass the social and environmental determinants of health, as well as individual behavioural exposures (87). Rahman and colleagues (2000) have argued that identifying mental health needs is a multifaceted process that involves collecting epidemiological data, comparing data by social and economic indicators and interviewing adolescent service users and key stakeholders involved in the care of adolescents (88). Although establishing the prevalence of adolescent mental health conditions is a first step, determining factors that adversely and positively affect mental health is critical to inform prevention and intervention of these conditions (89).

The sections below provide an overview of adolescent mental health needs, investigating specific social determinants of mental health and individual mental health risks (poverty and violence) and protective factors (education and social support) during this stage of life.

#### 1.3.1.1. Mental Health Conditions

As described above, mental health symptoms and conditions begin to appear during adolescence and are the largest contributors to the overall burden of disease (11–14, 56). Common mental health conditions that appear during this stage of life include mood disorders (depression, bipolar); anxiety-related disorders; childhood neurodevelopmental (autism spectrum disorder) and behavioural disorders (attention deficit hyperactivity disorder, conduct disorder); eating disorders (anorexia, bulimia); and substance use/addictive behaviour disorders, among others (16) (90). Their



emergence and persistence is influenced by exposure to social determinants of mental health and individual risk factors (20).

#### 1.3.1.2. Social Determinants of Mental Health

The WHO Commission on the Social Determinants of Health defines social determinants as “circumstances in which people are born, grow up, live, work, and age, and the systems put in place to deal with the illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics” (91). Despite limited research on social factors’ association with adolescent mental health conditions in LMICs (92), there is a critical need to identify these determinants as it is during this stage of life that multiple social determinants intersect and interact with individual factors to influence the mental health of adolescents (93–95). It is also important to understand how social determinants influence the development and persistence of mental health conditions during adolescence. Indeed, identifying these determinants provides an opportunity to develop and implement effective, efficient and intersectoral interventions that target social factors to prevent conditions and promote adolescent mental health and wellbeing (92,96).

An example of an intersectoral intervention that targets social determinants is Communities That Care, a community-based prevention programme in the US aimed at reducing violence, risky behaviours and substance abuse among children and adolescents (0-18 years). The programme aims to strengthen community collaboration (parents, teachers, religious leaders, police etc) and coordinated action to develop a plan to reduce risks and protect adolescents and youth. It promotes community norms (e.g., prevention of drug use and reduction of firearms and crime) that reduce the likelihood of adolescent delinquency; and encourages the adoption

and implementation of evidence-based practices, policies and programmes. An evaluation of the long-term impact of this programme (97) on young people (11-23 years of age) showed sustained abstinence in substance abuse and antisocial behaviour among those participating in the intervention communities compared to those living in the control communities. It also showed positive cost-benefits, through avoided crime and health care costs, with approximately USD \$3,000 more in benefits per participant (beyond the cost of the programme) from sustained abstinence in substance abuse and antisocial behaviour (97).

#### 1.3.1.3. Individual Risk and Protective Factors

The WHO defines risk factors associated to adolescents' health as "individual attributes or characteristics of the physical and social environment that increase the likelihood that an adolescent will engage in potentially harmful behaviours or suffer negative health outcomes". Risk exposures are defined as "things that happen to an adolescent that may have negative impacts on health and are outside of his/her control". Meanwhile, protective factors have the opposite effect and include characteristics that prevent negative outcomes or lower the likelihood of a risk factor's impact (6).

Adolescent mental health conditions are associated with greater exposure to, and engagement in, risk factors or risk-taking behaviours (98). During this stage of life adolescents begin to engage in risk-taking behaviours, potentially contributing to premature mortality and long-term morbidity. Adolescents' pressure to conform with peers, greater use of technology, sexual identity exploration, family relationships and a need for greater autonomy all potentially contribute to increased exposure to, or

engagement in, risk factors or risk behaviours, affecting mental health outcomes (89, 98).

Adolescents, compared to adults, are more likely to be exposed to, or engage in, risky sexual activity, reckless driving, violence and substance abuse. Indeed, the greater cumulative exposure to risks during this stage of life, the higher the likelihood of adversely impacting mental health (98). Other risk factors associated with adolescent mental health conditions include poor living conditions, harsh parenting practices, an unsupportive environment, stigma and a lack of access to quality health services (98).

Engaging in risky behaviours can trigger a feedback loop for adolescents, as this is not only a coping strategy for dealing with symptoms of mental health conditions, but these behaviours can also negatively impact their mental and physical health, which in turn can motivate further unhealthy behaviours (98).

Identifying these risk factors and promoting positive mental health, while protecting adolescents from adverse experiences, contributes not only to the prevention of mental health conditions but also to the improvement of adolescents' mental health (98). Meta-analyses (99), systematic reviews (100,101) and literature reviews (102) have suggested that during adolescence, strengthening protective factors, such as social support, and reducing exposure to and engagement in risk factors, can be beneficial to the adolescent's health across the life course (10).

## Social Determinants and Risk Factors

It is important to note that macro-level social determinants of mental health and individual mental health risk factors co-occur, cluster, and are compounded, interacting through a chain of events based on context, timing and dosage across the

life course (89). These interactions render it difficult to determine the factors responsible for the onset and continuation of mental health symptoms and conditions. In addition, culture and the way in which it influences the presentation and interpretation of mental health symptoms and conditions contributes to the visibility of mental health needs. As such, comparing mental health symptoms and conditions across cultures is challenging due to disentangling these effects (103). At the same time, without sufficient protective factors, like social support and supportive environments, adolescents may be overcome with stress and helplessness, contributing to the development or progression of mental health symptoms and conditions (89,104).

To this end, these social and individual risk factors need to be targeted for intervention as they contribute to a range of mental health conditions. This illustrates the multidimensionality of these factors, as well as, the complexity of the conditions (105,106,107).

#### Bidirectional Nature: Mental Health and Social and Individual Risk Factors

Relatedly, there is a bidirectional, cumulative and dynamic interaction between mental health conditions and social and individual risk factors. This is referred to as a “vicious” cycle (108). Two theories that have been developed to explain this complex relationship include the Social Drift and Social Causation theories.

The Social Drift (or “social selection”) theory posits that poor mental health leads to poverty, exclusion and unemployment (109). The mechanisms by which this theory operates involve the mental health condition, stigma about the condition, and health care expenditure, which contributes to exclusion, poverty and marginalisation (96,110). For example, poor mental health can adversely influence: individual choices

or behaviour; living standards and economic opportunities; and future socioeconomic improvement (93–95,111–114).

The Social Causation theory, in contrast, proposes that exposure to social and individual risks such as poverty, poor quality education, exposure to violence, unemployment and a lack of access to resources among others, contribute to the development of mental health conditions (96). For example, individuals living in poverty may have less financial resources to protect themselves against negative events and stress, thereby adversely affecting their mental health (96,115).

Elder et al (2003) and Schuck et al, (2021) have argued that the Social Drift and Social Causation theories may not operate independently of one another. Evidence suggests that the mechanisms by which these theories operate may interact across the life course, influencing one another and leading to cumulative advantage or disadvantage (116,117). In a longitudinal analysis, Lund and colleagues (2018) showed that both the social drift and social causation theories operated together to influence poverty and depression in South Africa (118). Further longitudinal research, however, needs to be conducted due to study limitations in terms of self-reported depression, variations in response rates and confounding (118).

**Chapter 5** of this thesis investigates exposure to different types of violence, sources of social support and adolescent mental health in São Paulo city, Brazil. There is limited evidence on the underlying causal mechanisms between adolescent mental health conditions, poverty, violence and social support in Brazil. Indeed, it is important to identify, for prevention and intervention purposes, whether violence and unsupportive environments lead to poor mental health; or the inverse, wherein mental health conditions lead adolescents to unsupportive environments and violence (118). It could also be a combination of the two mechanisms, as Lund et al (2018) illustrated

above (118). Of note, the hypothesis tested in **Chapter 5** focusses on the Social Causation pathway, in that poverty, violence, and social support influence adolescent mental health.

The context within which the empirical research for this PhD research was conducted are poor and violent neighbourhoods of São Paulo city, Brazil. The rationale for choosing to focus on these social and individual risk factors is due to the role they play in resource-limited environments, and their influence on the risk of developing mental health symptoms and conditions during this stage of life (36,119–121). The sections below are linked with **Chapter 5 – 6**.

## Poverty and Violence

### Poverty

In 2017, the World Bank and the United Nations Children’s Fund (UNICEF) (2017) estimated that 135.4 million adolescents (10-17 years) (or 13.8% of the global population) lived in extreme poverty, or on less than USD \$1.90 per day (122). Although mental health is the largest contributor to the burden of disease among adolescents, this burden is not shared equally across socioeconomic groups (123,124).

Poverty is a multidimensional, complex concept. It has been defined in absolute (fixed income), relative (income level compared to the population mean), and multidimensional terms (social and economically, such as the Human Development Index) (125–127). Lund and colleagues (1982) argue that how poverty is conceptualised, experienced and measured influences the nature and degree of its relationship with mental health (128). Indeed, it has been estimated that compared to those with average incomes, individuals in the poorest fifth income are twice as likely to develop a mental health condition (129,130).

Adolescents living in poverty are exposed to interactive and cumulative adverse factors, such as a lack of social and health resources, exposure to crime and violence, and unemployment, among others (131). These exposures increase their risk of poor mental health, adversely influencing future opportunities (132–134). It also impacts their growth, development and adjustment (135). Adolescents living in poverty are disproportionately exposed to infectious diseases, poor nutrition and health, poor housing conditions and hazardous materials and environments (131,135). They also may engage in early school dropout (136).

Fone et al (2007) have shown that among the general population, living in a resource-limited neighbourhood has a negative effect on mental health, independent of individual level income (137). In that, risks associated with living in a poor neighbourhood, including exposure to violence and crime, limited availability of social resources and poor neighbourhood quality, are associated with poor mental health (95). At the same time, poverty influences the quality of community and family relationships. This includes social relationships, social cohesion and parenting practices (138), affecting the adolescent's mental health.

Poverty has widespread and far-reaching consequences on adolescents, creating vulnerabilities and influencing their mental health through a variety of pathways (139). Adolescents living in poverty may experience psychological stress from living in a resource-limited environment (131,135), including a lack of exposure to public services and opportunities for education and employment. This negatively affects social trust and social capital, both of which are associated with stress and social problems (138). Furthermore, adolescents in resource-poor settings take on adult responsibilities at an earlier age than those in high-income countries (139). They also may be at risk of being socialised into unstable and dangerous employment (131).

At the same time, financial difficulties lead to increased parental stress, creating family conflict and poorer parent-adolescent relationships. This has been associated with increased levels of adolescent depression (140).

Chronic exposure to poverty is associated with adolescent depression, substance use (141), early sexual initiation (142) and criminal activity (143). Living in a high poverty neighbourhood also increases the adolescent's exposure to violence, with research showing associations to increased levels of adolescent anxiety, depression and externalising behaviours (139,144,145).

Evidence suggests that poorer mental health outcomes and a higher incidence of psychotic disorders and developmental trauma, are a consequence of living in urbanised, lower-income areas (22). In a longitudinal, comparative study between the US and Netherlands among children and adolescents 8-16 years (at baseline), lower socioeconomic status (SES) was associated with higher scores on the following disorders: withdrawn, aggressive behaviours, thought problems and attention problems (146). Similarly, unemployment, low income, and limited education have been associated with an increased prevalence of mental health conditions, with low SES potentially worsening mental health conditions (147).

## Violence

Exposure to violence during adolescence contributes to the global burden of premature death, injury and disability. It not only affects the adolescent but also their family, friends and communities. As a social determinant of mental health, direct and indirect exposure to community violence during adolescence impacts the social and psychological function of an individual long-term (148). A strong body of evidence has showed that engagement in, and exposure to, violence is a risk factor for adolescent



mental health conditions, accumulating across the life course (63,64,65,67,149,150). It is associated with increased symptomatology for depressive and anxiety disorders, as well as PTSD symptoms (63,64,65). Research suggests that internalising disorders, including depression and anxiety, are among the most common mental health outcomes of violence exposure among adolescents (67). Furthermore, it is associated with an increase in health, criminal and welfare costs, property values and decreased productivity (148). Indeed, low-income neighbourhoods are more likely to be affected by violence than high-income neighbourhoods (151).

There are several types of violence that adolescents can experience, including bullying, assault by strangers, violence related to property crimes, witnessing or hearing about violence from other individuals in the community. The WHO defines these types of violence as community violence, which includes all interpersonal violence not perpetrated by family members or intimate partners but by acquaintances and strangers (152).

Homicide is one of the leading causes of death among children and adolescents (0-17 years) and young people (10-29 years of age) globally. According to the WHO (2020) (148), in 2017 the global child and adolescent homicide rate was estimated at 1.7 homicides (per 100,000 0-17 years), or approximately 40,150 children (0-17 years), representing 8.4% of all homicides (n=477,822 total homicides). There was a clear gender divide: the homicide rate for male children and adolescents was estimated at 2.4 homicides (per 100,000 0-17 years) compared to females (1.1 homicides per 100,000 0-17 years). These estimates were derived from WHO Member States on the number and proportion of homicide victims 0-17 years of age collected from the public health sector (causes of death collected by public health or medical services). The Americas had the highest homicide rate for boys (9.3 homicides per 0-17 years males), or four times the global average. The homicide rate for girls in the

Americas was estimated at 2.1 homicides (per 100,000 0-17 years females), higher than boys in all other regions, except Africa.

In Brazil, the national child and adolescent homicide rate was 11.6 homicides (per 100,000 0-17 year olds). The young male homicide rate (0-17 years) in Brazil was estimated at 20.2 homicides (per 100,000 0-17 year males) while the female rate was 2.6 homicides (per 100,000 0-17 females). By comparison, the child and adolescent homicide rate in the United Kingdom (UK) was estimated at 0.7 homicides (per 100,000 0-17 year olds) (the same estimated rate for boys and girls 0-17 years) (148).

The United Nations Office on Drugs and Crime (UNODC) estimated in 2019 that young men aged 15-29 years globally were at the highest risk of intentional homicide deaths, with an estimated rate of 16.6 homicides (per 100,000 males 15-29 years). Similarly, young males and females (15-29 years) in the Americas faced the highest homicide risk, compared to their counterparts in other regions. The data was derived from Member States information from criminal justice (police) and public health (causes of death collected by public health or medical services) sectors (153). The UNODC methodology follows the definition of intentional homicide as set by the International Classification of Crime for Statistical Purposes. This includes three criteria: causing the death of another person (objective); intentionality (subjective); and unlawfulness (legal). The UNODC states that they place greater reliance on criminal justice data as this includes criminal investigations into the cause of death (which considers all three criteria), as opposed to public health sector data, which relies on two of the criteria (not the third) (154). In critiquing the data, it would be important to understand how law enforcement determines homicide intentionality and to explore how law enforcement registers and classifies homicides, considering the issue of police brutality.

Research has also found differences in ethnicity, sexual orientation, socioeconomic status and community violence exposure. African American youth in the US are exposed to disproportionately higher levels of community violence than other youth in economically disadvantaged communities (155–157). Zimmerman and Messner (2013) reported that in the US, when compared to White youth, the odds of being exposed to violence for African American and Latino youth were 112% and 74% greater, respectively (158). The rates of exposure to violence for these young African American and Latino men also exceeded the rates of exposure for young women (157). In addition, a systematic review found that sexual and gender minorities experienced a higher prevalence of physical and sexual violence motivated by the perception of sexual orientation and gender identity (159). It was also found that lesbian, gay, bisexual, and queer (LGBQ) adolescents who experienced harassment or violence were more likely to have depression than heterosexual adolescents (160).

Physical fighting, bullying and sexual violence are common among young people. According to the most recent data from the Global School-based Student Health Survey and the Health Behaviour in School-aged Children study from 144 countries, 1 in 3 students 11-15 years suffered from bullying at least once in the past month (boys 35%, girls 30%) (161). Bullying takes different forms by region: the most common type of bullying in North America and Europe was psychological bullying; in other regions, physical and sexual bullying were the most common forms. In addition, one in 10 children have experienced cyberbullying.

Bullying has implications for school completion, with estimates showing that 13% of adolescent (11-15 years of age) bully-victims were less likely to graduate from school, compared to those not bullied (161). A study conducted in Mexico showed that 44% of adolescents 12-17 years of age (over 2.8 million adolescents) were victimised

at least once in the past 12 months. Meanwhile, approximately 26% of 13-15 year old adolescents reported involvement in a physical fight with another student, while 32% reported having been attacked in the past year (boys 45%, girls 25%) (148). In a 2016 study in the US, approximately 5% of adolescents (10-17 years) stated they were victims of community violence (148).

In a meta-analysis of dating violence among adolescents 13-18 years of age, results showed that the global prevalence of physical dating violence was estimated at 20%, with 9% reporting that they had experienced sexual violence (162). In a study on sexual violence among young females 18-24 years of age in 14 LMICs, results showed that the sexual violence varied from 4% in Cambodia to 35% in Uganda. In 2014, global estimates suggested that 1 in 3 adolescent girls (15-18 years of age) experienced emotional, physical or sexual violence by their husbands or partners. Young males 18-24 years of age also reported experiencing sexual violence, with estimates ranging from 3% in El Salvador to 21% in Haiti (148).

There has been mixed evidence on the impact that COVID-19 has had on adolescents' exposure to interpersonal violence (163,164), in light of lockdown measures limiting adolescents' access to support networks. According to an analysis of two rounds of surveys of 48 child helplines (for children and adolescents 0-18 years of age) in 45 countries (developed and developing) in 2020, 38 child helplines provided data on COVID-19 related contacts. Of these calls, 13 reported the number of contacts related to violence. Results from the first quarter of 2020 showed that 7% of total COVID-19 related contacts were about violence, while in the second quarter of 2020, 16% of all COVID-19 related contacts were about violence. Yet, compared to pre-COVID-19 figures, the authors showed a 17% decrease in violence related contacts during the pandemic. It appears the data is not reliable enough to determine whether

violence against children and adolescents increased or decreased during the pandemic (165).

Meanwhile, adolescents have experienced greater risk of being harmed online, with cyberbullying and sexual exploitation increasing as a result of the pandemic (163,164). There has also been mixed evidence on homicides and violent assault. The Global Status Report on Violence Against Children has reported that this decreased during the pandemic (148), however, the Committee for the Coordination of Statistical Activities (2020) stated that homicide trends in countries with high homicide levels did not see a significant change (166). Nivette and colleagues (2021) analysed stay-at-home restrictions and police-recorded crime in 27 cities globally (in the Americas, Europe, the Middle East and Asia). Results showed that, on average, crime decreased by 37% across all cities. However, heterogeneity in different types of crime were observed across cities. There was a 35% reduction in daily assaults; a marginal decline in homicides (Lima, Peru; Cali, Colombia; and Rio de Janeiro, Brazil reported a significant decline in homicide levels); variation in burglary levels (Lima experienced an 84% decline in burglary and San Francisco, US a 38% decline); and variation in theft levels (city dependent). The results also showed that strict stay-at-home orders were associated with a significant decrease in crime (167). It appears that violence levels during the pandemic depend upon the city and type of crime investigated.

As mentioned above, individuals living in poor neighbourhoods have a higher likelihood of exposure to violence and crime compared to wealthier neighbourhoods (161). They also may have fewer resources and sources of support to help them process these exposures and risks, increasing their vulnerability to poor mental health (168,169). Fear of crime and neighbourhood safety have been shown to have an adverse effect on mental health (170,171). Among adolescents, evidence shows that

exposure to community violence, including gang violence, has been associated with PTSD, bully perpetration, substance abuse, externalising behaviours, depression and anxiety (47,172–176). In fact, PTSD is associated with exposure to community violence in both developed (177,178) and developing countries (179). Evidence has also showed that community violence is associated with a lack of supportive institutions and networks, poor housing conditions, poor quality education, population density and family dynamics (173,180). The mechanisms by which this potentially works could be that high rates of violence and crime lead to decreased household assets and income, making communities less appealing to live in (181). They also negatively affect the social and economic dynamics of communities (182–184), limiting community social mobility (185) and the use of environmental resources, reducing people’s freedom to move about the community (186). Despite this association between violence and poverty, violence is not generally included in poverty measurements (187).

## Education and Social Support

### Education

Adolescent education influences health across the life course (188). Schools provide social interaction; routine; promote protective factors, such as social skills, learning, engagement in healthy behaviours, the quality of relationships, social and emotional competencies; and future academic and career opportunities (189–191). Schools also can contribute to the reduction of disruptive behaviours through preventive and universal school mental health screening, with targeted and intensive services for students at-risk or in greater need of support (27,32,192–197). Indeed, schools provide an appropriate site to implement interventions as a majority of

adolescents are in school during this stage of life. The school environment can have a positive effect on students' mental wellbeing (198). To ensure favourable mental health outcomes, healthy behaviours and connectedness to schools, families, friends and communities can be promoted (199–204).

Defined as students' belief that adults at school are about them as learners and people, school connectedness is protective for adolescents and is associated with positive educational achievements and mental wellbeing (205–209). Adolescents who do not have positive school support systems or experience negative school connectedness, have a higher likelihood of substance use, externalising behaviours, and mood and anxiety-related disorders, compared to those with positive peer and teacher support. Students disconnected from school may be exposed to bullying, have poor relationships with teachers, poor school achievement and experience feelings of stress. They also may be more likely to leave secondary school early and have poorer relationships with adults, compared to their peers with positive school connectedness (189–191,202,207,210–215).

In a school-based longitudinal cohort study, Bond and colleagues (2007) investigated social and school connectedness with substance use, mental health and educational achievements among adolescent students (14-17 years of age) two years later (203). Results showed that students who reported feeling disconnected from school and experienced bullying at baseline also reported engaging in substance use, experiencing depressive symptoms and poorer educational achievements two years later. They also were less likely to finish school compared to those who reported experiencing high school connectedness. Indeed, positive social and school connectedness was associated with the lowest likelihood of depressive symptoms two years later (203). Similar results have been shown in other studies (216–219).

Catalano and colleagues (214) proposed that schools should be organised in a way to respond to students' mental health and learning needs, through a supportive environment to achieve positive mental health outcomes and reduce risky-behaviours. This would involve teacher and peer support, promotion of learning for all and safety in school (220). One study showed that the promotion of educational achievement and connectedness was associated with lower rates of substance use and violence (221). Other studies have shown similar results (222). There has been mixed evidence on school-based peer support mental health interventions. A cluster RCT study showed that the promotion of peer support actions was associated with better health outcomes among adolescent students in Jordan (223) while a systematic review on peer-led mental health interventions showed that the evidence was inconclusive on the effectiveness of peer-led interventions in schools (224).

In contrast, early school leaving has negatively impacted adolescent mental health, and increased the likelihood of poverty, unemployment and increased morbidity and mortality (225–230). That said, it is difficult to disentangle the effect of school dropout on mental health, as there appears to be a bidirectional relationship. Mental health conditions are associated with early school leaving, while early school leaving is associated with poor mental health after dropping out (114,231–233).

### Social Support

It has been argued that social support is a social determinant, viewed as a malleable, non-medical factor that impacts mental health (234). Indeed, adolescents' social norms, behaviours, attitudes and values are shaped by their family, friends and community (14). As such, social support includes preventive and protective interventions that can be implemented within their environment. In fact, the WHO has



encouraged actions within the family, school and environment to promote positive social and emotional skills among adolescents (20).

Social support and a supportive environment, from community, family and intimate relationships, play critical roles in promoting adolescents' healthy development and mental wellbeing (235–237), particularly for those living in limited resource and violent settings.

There are a number of mechanisms whereby high levels of social support might translate into more positive mental health outcomes for adolescents through the development of new skills, to protect against negative experiences and ensure that individuals feel valuable (238,239); by disclosing their experiences to parents, friends, and teachers, to help them cope with stressful events (67); and motivating adaptive behaviours (240).

When adolescents are exposed to stressful life events and not exposed to a supportive environment, this increases their likelihood of developing a mental health condition (241). A supportive environment and attachment with the adolescent's primary caregiver are critical to promote emotional and behavioural resilience to stress (242). Without such support, this places the adolescent at-risk for poor neurodevelopment, and greater exposure to environmental risks and mental health conditions (243–245).

According to House (1981), there are four main types of social support that arise from an individual's social network: emotional, instrumental, informational and appraisal. Emotional support is defined as the provision of support that is loving, caring and empathetic; instrumental support, as the provision of tangible goods and services; informational support as the provision of information during stressful periods; and appraisal support as information that promotes self-evaluation instead of problem-solving (247). It can come from various sources, including the community, intimate relationships, and through limited but regular contact with others (248). Perceived

social support is the perception an individual has about the availability of support provided to them from their various social networks (249–250). It can provide both positive and negative aspects, including companionship, guidance, nurturance, dependable alliance, sense and empowerment of worth, attachment (251); satisfaction, loyalty, power, conflict (252); intimacy and control (253); and communication, trust, and isolation (254).

Social support enhances an individual's physical or mental health while potentially buffering against poor outcomes (235,236). Emotional and instrumental support can help the adolescent cope with difficult situations and violence victimisation through advice, boosting self-esteem and ensuring that the adolescent maintains a feeling of competence (255). Greater social integration and satisfying relationships are associated with better mental health and well-being and lower rates of morbidity and mortality, while less social support has been associated with greater health risks (237,247,256–260). A school-based longitudinal study in East London investigated whether social support (from family, friends and significant others) moderated the association between bullying and school achievement and bullying and mental health. Results showed that adolescent students (11-14 years of age) who reported having either high (OR=0.44, 95% CI 0.31, 0.61) or moderate levels (OR=0.60, 95% CI 0.49, 0.72) of family social support were associated with lower depressive symptoms (261). In a meta-analysis of social support and its role on the risk of mortality, Holt-Lundstad and colleagues (2010) showed that social integration and meaningful relationships could predict mortality more strongly compared to lifestyle behaviours, such as smoking and physical activity (262).

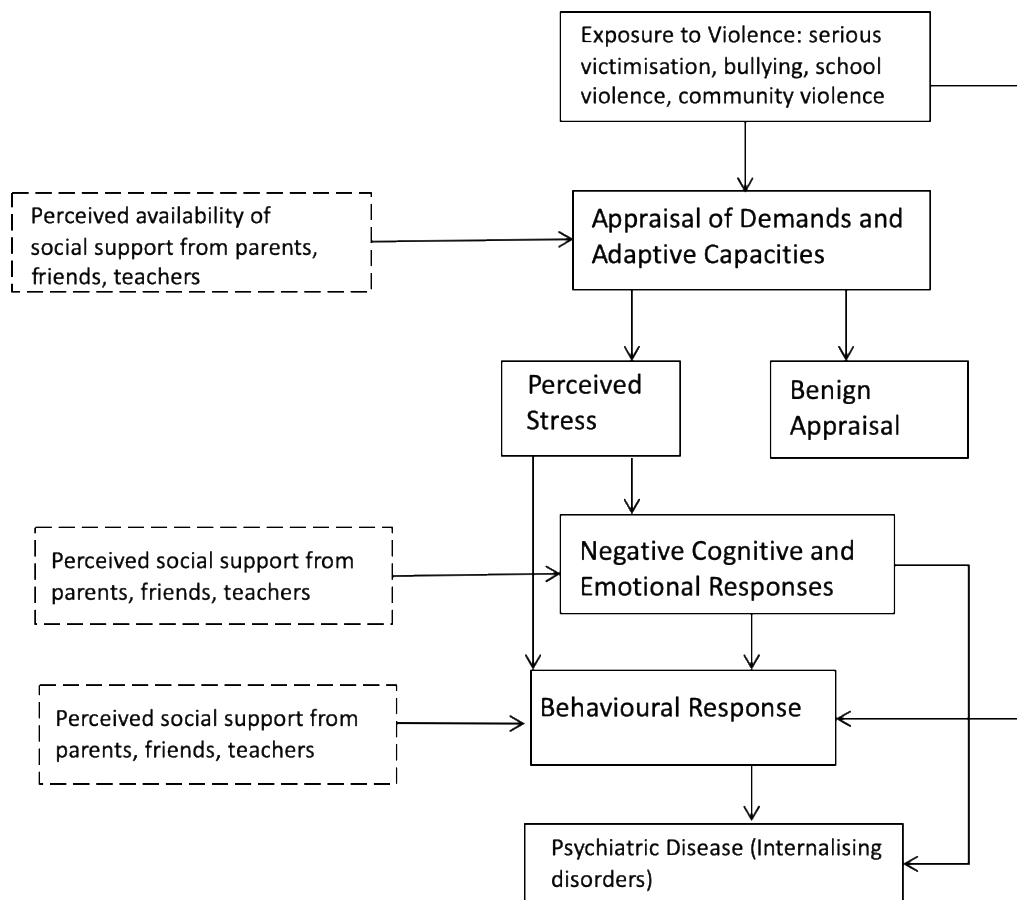
Evidence has showed differences in social support by gender, ethnicity and sexual orientation. Peer support has been shown to be more important for boys while

guardian support more important for girls (263). Among ethnic minorities in the US, the availability of social support from family and friends was associated with fewer internalising symptoms (264–266). At the same time, evidence on sexual orientation and social support has been mixed. In a systematic review, Hall (2018) showed that some studies reported a protective effect of social support on internalising disorders among sexual minority groups, whereas other studies illustrated no effect among LGBTQ youth (160).

### Stress-Buffering Model

A framework that conceptualises the relationship between social support and behavioural responses to acute or chronic stressors is the stress-buffering model (figure 2). Buffering occurs in two ways: (i) if an individual perceives that positive support resources are available during a crisis, this improves their capability of handling the stressful situation; or (ii) the support available (from parents, friends, teachers) may provide a solution or lessen the perceived importance of the stressor, thereby reducing the negative reaction to the stressor on the individual's health and behaviour (237). This model is tested in **Chapter 5** of this thesis.

Figure 2. Stress-Buffering Model for Adolescents Exposed to Violence



Source: Adapted from Cohen S et al. 2000. Social relationships and health. In Social Support Measurement and Intervention: A Guide and Social Scientists Account. Eds. Gottlieb BH, Gordon LU, Cohen S; Fetzer Institute.

Research from high-income countries suggests that social support could modify, or buffer, the relationship between violence exposure and poor mental health outcomes among adolescents (240,267) although evidence is mixed. Evidence on adolescents in the US showed that higher levels of social support moderated the association between violence exposure resulting in fewer internalising symptoms (263,268). In contrast, a number of studies from the US and Australia found no evidence of a moderating role of social support between violence and mental health (67,269). At the same time, violence may have an endogenous dynamic effect in schools and neighbourhoods (270). For example, adolescents that attend a school where violence is pervasive, or live in a violent community, may feel the need to project

an “aggressive persona” to protect themselves and maintain a sense of self-respect and identity (271). Also, adolescents who perceive high levels of social support in school and their environment are more resilient to stressors and better able to adjust to challenges (272).

While substantial research has focussed on the association between violence exposure and internalising disorders among adolescents, evidence on factors that could protect adolescents from violence and poor mental health outcomes remains limited, particularly in LMICs and especially in Brazil. This will be explored in **Chapter 5** of this thesis.

### 1.3.2. Adolescent Mental Health Actions

Adolescent mental health actions are conceptualised as the interaction between three levels: mental health services, community actions and structural actions (273). These actions aim to improve the mental health of adolescents by addressing their mental health needs (Section 1.3.1).

Developing, adapting and implementing actions to address adolescents’ mental health needs is challenging as adolescents come in contact with, and engage in, various environments outside of the health sector (schools, sports, communities etc). As such, mental health actions must consider these environments, with evidence showing that effective interventions are those that are intersectoral and multicomponent in nature (273,274). For example, multifaceted actions tailored to the needs of the adolescent that include knowledge dissemination through schools, communities and social media; trained health, education, social and other care workers; and adolescent-friendly actions have been shown to be effective in promoting adolescent health (275,276).

At the same time, mental health actions must consider the age of the adolescent. Younger adolescents (10-14 years) may have distinct needs and require actions and services that are different from older adolescents (15-19 years) (273), while strategies and actions effective for older adolescents may not work for younger adolescents (3). For example, older adolescents spend more time and rely on their peers, and are more autonomous; while younger adolescents have a greater reliance on their parents (3, 273).

Mental health actions can include mental health promotion, or positive and integrated mental health interventions that are adapted to the sociocultural setting, address societal problems and are delivered to the entire community. It can also include primary prevention, or interventions that prevent the onset of mental health conditions; and secondary and tertiary prevention, or interventions aimed at early identification and treatment, case detection and rehabilitation (245,277–279).

Identifying prevention strategies that are effective and scalable are critical for adolescent mental health as well as towards ensuring the achievement of universal health coverage (274). Mental health services, within health facilities, are offered at the primary, secondary, and tertiary care levels. With adolescent mental health, there is an opportunity to engage with primary health care services, as primary mental healthcare is the entry point to the healthcare system.

Primary services play a critical role in recognising, treating and preventing adolescent mental health disorders. Grounded in the Alma Ata Declaration on Primary Healthcare (280), the provision of primary mental health services could help close the treatment gap (the gap between the prevalence of adolescent mental disorders and the number of adolescents receiving care) (18). Indeed, the Alma Ata Declaration recognised health as a human right and acknowledged that health was influenced by a range of factors including individual choices, community participation, SES, access to health services, education and politics. It promoted primary health care as essential to accessible universal health care and recommended Member States to pass policies to strengthen primary health care services (280). Since the Alma Ata Declaration, however, there has been uneven implementation of the primary health care policy due to the complexity of health system reforms, including the financing and time associated with these processes (281).

Primary health care services today are generally organised to respond to physical illness, targeting specific population groups including women, children, older people and those with NCDs. These services have not been designed to respond to adolescents' multidimensional mental health issues, evolving health profiles and their needs. As a result, adolescents are less likely to engage in services, compared to other population groups (21).

The provision of primary mental health care services for adolescents could include screening, coordination of care with preventive-mental health programmes in schools, short-term therapies for at-risk adolescents and referrals onto more specialised services (282,283). Also, due to the multidimensional nature (psychological, physical and social) of adolescent mental health needs (i.e., positive and stable relationships; healthy nutrition; supportive environments and exposure to and engagement in risk or protective behaviours) (84,284), psychosocial strategies need to be developed to respond to health, education, social and judicial issues (5).

Secondary mental health care services are defined as those that are provided on an outpatient, inpatient or emergency basis and generally require referrals from the primary health care level (285). Meanwhile, tertiary mental health care are specialised

services delivered by trained health care providers to individuals that require greater health care assessment, time and management (286).

Community actions are defined as interventions implemented within the community and involve schools, families, the local government, and faith-based and non-governmental organisations (273). These can include the promotion of social and emotional skills, safe environments and social support (273,287–289).

Structural actions include legislation and policies that promote adolescent mental health. Policies are the foundation for actions to tackle mental health determinants and risks (273). Indeed, policy and legislative efforts provide a roadmap of care, as well as, government commitment. Policies should include good governance, financing mechanisms, evidence-based research, training programmes for health care providers, and access to effective, comprehensive and evidence-based care (290–293). Policies also guide advocacy efforts for adolescent mental health, the development of adolescent mental health services, intersectoral collaboration and the evaluation of such services and programmes, along with accountability mechanisms. Policies also ensure the sustainability of programmes that could be vulnerable to changes in political administrations (291,293).

In the sections below, adolescent mental health services and structural actions are explored. These are linked with **Chapters 4 & 6**.

#### 1.3.2.1. Mental Health Services within Health Facilities

Within the last decade, there has been increased attention on the mental health of adolescents and the health services serving 10-19 years olds (3,226). In high-income countries, health services targeting adolescents can provide supportive information and resources, prevent onset and relapses, and treat those with a mental



illness. These services can also reach vulnerable and at-risk groups (294–296). Despite this evidence, adolescent mental health services are often inadequate, insufficient, poorly coordinated, poorly funded, and fragmented, particularly in LMICs (297). This is attributed to a lack of human and financial resources, lack of prioritisation of adolescents, and is explored in the sections below.

The WHO estimates that 76%-85% of the general population with severe mental health disorders either do not access services or receive care in LMICs; this is estimated at 35%-50% in high-income countries (298,299). There are no global estimates on the percentage of adolescents with mental health conditions that access or receive care through the different mental health service levels (and the types of services used, such as through schools and community-based organisations). A nationally representative US household and school-based cross-sectional survey of adolescents 13-18 years of age (between 2002-2004) showed that 36.2% of adolescents with any diagnosed DSM-IV mental health condition received treatment. Those with behaviour disorders (specifically attention-deficit/hyperactivity disorder) were most likely to receive treatment, compared to other mental health conditions; the treatment gap was largest for those with substance use disorders and anxiety-related disorders. Adolescents with severe DSM-IV mental health conditions were more likely to report using services compared to those with less severe mental health conditions. Meanwhile, 46.5% of adolescents reported using a secondary mental health facility, while 35.4% were seen within school health services. There were also large gaps for ethnic minority adolescents receiving mental health treatment, compared to White adolescents (300).

Considering the above evidence, estimating adolescent service use would prove challenging due to variations between and within countries in the quality of the

information and data collected (if collected at all). For example, there may be different methodologies employed in research studies or through local and national health information systems including variations in study designs; sample characteristics (e.g., age range); the types of services used to obtain mental health care (e.g., schools, health services, religious organisations); and the mental health symptoms and conditions assessed and included in the reporting of the data (42). As such, standardising the collection of data on mental health use and treatment by adolescents is critical to understand the burden and how to respond.

At the same time, adolescents often receive mental health care that is not matched to their needs due to current service delivery models (5,294,301,302). For example, current delivery models may use generic syndrome classification systems and guidelines that do not consider early, evolving and mixed mental health conditions (5,226,303–305). There may be a lack of, or limited assessment of social, economic and cultural indicators (i.e., self-harm, employment, substance misuse, exposure to violence, physical health) that contribute to mental health conditions during adolescence (5,306–308). There also may be a lack of identifying pathophysiological mechanisms (5,305,309,310). Finally, current interventions and services may not implement measures that acknowledge the importance of the clinical stage (5,12,226,311). This contributes to poorer mental health conditions (294), continuing functional impairment, increased hospitalisations and the use of crisis services and A&E facilities (5,312).

Furthermore, the prevalence of mental health conditions is likely underestimated due to weak data collection; societal and cultural norms that prevent reporting; low rates of help-seeking among adolescents; as well as, subthreshold or mild mental health symptoms that remain undiagnosed (which can prove challenging to identify)

(297,313,314). This is particularly problematic in resource-limited contexts, leading to a paucity of information on services that meet adolescents' needs. Adolescent mental health is particularly influenced by access, availability and use of mental health services. Understanding their mental health needs and status are closely tied to the quality of the mental healthcare services that they receive (315). This will be explored in the sections below and is linked with **Chapters 4 & 6** of the current thesis.

#### Access

Adolescents face several barriers to accessing mental health services within health facilities. This is attributed to a lack of mental health financial and human resources and the growing number of adolescents in need of mental health support (36). Herman et al (2012) reported that the gap in access and coverage to mental health care is largest for young people (12-25 years of age) compared to any other age group globally (316). However, considering the evidence, it appears there is no readily available data on this. The information that is available relates to a gap in access and coverage to mental health care among children and adolescents (0-17 years) (317,318). Using data from the WHO Assessment Instrument for Mental Health Systems in 42 LMICs, results showed that the median treated prevalence for those 0-17 years of age was 159 (per 100,000 0-17 year olds) compared to an adult rate of 664 (per 100,000 adults) (318). This points to a need for data on coverage of mental health services for adolescents specifically, as there are likely differences between a child's mental health coverage compared to an adolescent. For example, parents may be more involved in the young child's mental health treatment compared to an adolescent; adolescents may not want their parents involved; and due to the condition, there may be differences in care, such as treatment for eating disorders which may require long term care. Also, services may be more likely to respond to child mental

health conditions compared to adolescent mental health conditions (42). This mental health treatment gap could be attributed to disorganised and fragile mental health systems in LMICs (319,320). Determining factors associated with adolescents' access to mental health services could help inform health service delivery, programmes and interventions (321).

According to the WHO *Mental Health Atlas* (2020), there is a paucity of data on child and adolescent mental health due to countries not reporting (if collecting at all) age-disaggregated data. As a result, this leads to a lack of information on adolescent mental health services and resources. Of the data that is available, estimates suggest that the median number of child and adolescent inpatient mental health facilities was 0.2 facilities and less than 2 outpatient facilities (per 100,000 children and adolescents) globally (322). Other barriers to access for adolescents include cost (out of pocket payments [OOP] and poor insurance coverage), a lack of integrated mental health systems, health service location and operating hours (323). There's also the issue of parental/guardian consent, which an adolescent may need prior to accessing services. Adolescents may also have to depend upon families for transportation to services (324).

#### Barriers and Enablers to Adolescent Mental Health Services

There are several, multifaceted barriers that influence the provision, uptake, quality and continued use of adolescent mental health services. Ensuring that adolescents are connected with appropriate mental health facilities is one of the largest challenges (325). Identifying barriers and enablers to adolescent mental health services helps inform interventions, programmes and strategies to improve services and their use (326).

### Health Service Barriers

Several barriers within health services have been identified that affect the provision of mental health services to adolescents. One of the largest barriers is the limited availability of these services, with adolescents not prioritised in many settings. This results in a mental health delivery gap and influences the adolescent's development, potentially impacting their life-long health and wellbeing (19,89).

### Financial Resource Constraints

There are several challenges that countries face within the provision of adolescent mental health services, including financial resource constraints and limited development assistance for mental health (9,39,327–328). It has been established that investment in mental health in national health budgets for the general population is far less than what is needed to meet the current mental health burden in all countries (39). According to the WHO Mental Health Atlas (2020), the global median mental health government expenditure per capita was USD \$7.49 for the entire population in 2020. Total government health expenditure on mental health was about 2%. For the general population, lower and lower-middle income governments spent less than \$1 per capita, upper-middle income countries spent \$3.29 per capita, compared to \$52.73 in high-income countries. These insufficiencies in financial resources have led to OOPs for families in terms of services and medication (322). In 2008, it was estimated that in African countries, OOPs financed 71.4% of child and adolescent mental health services (CAMHS) (19). The WHO also estimated that for every \$1 invested to scale up mental health services for depression and anxiety (for the entire population), this would lead to a \$4 return on investment in terms of improved health and ability to work. Meanwhile, it was estimated in 2016 that failure to invest in depression and anxiety

disorders resulted in a global economic loss of an estimated USD one trillion/year worldwide (329).

Development assistance for mental health increased between 2007-2013 (from \$53.67 million in 2007 to \$196.62 million in 2013), yet represented less than 1% of the total development assistance for health. Of this 1%, approximately 16% of this assistance was allocated to children and adolescents, illustrating the lack of funding and priority of these age groups (39,327). Further, despite mental health representing more than double the global burden of HIV/AIDS, the annual assistance for HIV/AIDS was more than 50 times that of mental health (327).

#### Limited Availability of Trained and Specialised Health Care Providers

One of the most pressing barriers is the limited availability of mental health care providers, or those appropriately trained in mental health, so that they can engage, respond and deliver services to meet adolescents' mental health needs, particularly in LMICs. In 2013, it was estimated that more than 95% of adolescent mental health specialists were in high-income countries (323). According to the WHO's Mental Health Atlas (2020), there was a median of 3.4 health workers (per 100,000 population) in CAMHS globally. This ranged from a median of 0.01 in low income countries to almost 20 health workers (per 100,000 population) in high-income countries (322).

Petersen and colleagues (2017) conducted a qualitative study on governance issues related to mental health care services in Ethiopia, India, Nepal, Nigeria, South Africa and Uganda. Participants included policy makers, and provincial and district health care planners and managers. Key stakeholders reported that general mental health services faced inadequate pre-service training of GPs, high staff turnover, a

lack of specialist capacity and medical training that focussed on the biomedical model of medicine (9).

The lack of mental health training and referral networks for adolescents among non-mental health specialists, including community health workers, nurses, doctors and teachers, results in unmet adolescent mental health needs and misdiagnosed cases (324). Primary health care providers not trained in adolescent mental health are less likely to accurately identify and diagnose mental health conditions compared to other preventable diseases (331,332). The longer a mental health condition remains undiagnosed, the more difficult and costly it is to treat (333,334). These issues are heightened between public/private health facilities and urban/rural contexts, resulting in inequality of service provision (19). It also contributes to stigmatising attitudes from health care providers towards adolescents, such as discriminatory behaviours and not diagnosing or treating the adolescent with a mental health condition (9,94,335,336).

At the same time, due to overburdened schedules, health care providers are unable to attend to, and provide quality care, to adolescents seeking mental health services. The literature shows that the few adolescent mental health specialists that are available in these settings also provide mental health care to the entire population (19,43,337–341). This results in poor organisation and quality of care for adolescents, loss to follow-up and a lack of understanding of adolescent mental health needs and conditions among adolescents, families and communities (43,341,342). It also contributes to a lack of screening and mental health treatment options for adolescents.

#### Lack of Screening Tools

Identifying mental health conditions at an early stage is critical (323), however there is a paucity of validated, culturally-appropriate tools available to screen adolescents (19,323,330,343). Contributing to this is the lack of training among health

care providers to administer the tools that are available (19,323,344). This is even more challenging for adolescents who present with mild mental health conditions or fall below the diagnostic cut-off score (324). Moreover, countries have not prioritised mental health interventions for adolescents; rather, interventions for adolescents tend to focus on sexual and reproductive health, including sexually transmitted diseases and HIV, and social and economic empowerment (345).

#### Lack of Intra- and Inter-sectoral Collaboration

There is also a lack of integration within services, and lack of intersectoral collaboration in the development and integration of mental health interventions and services for adolescents (19,340). Given adolescents' hesitancy to seek services (273), it is critical that health services collaborate with other health service levels and sectors to improve adolescent mental health, such as education, social care, the judicial system and labour and employment services. Yet, in a review of adolescent mental health services from Australia, Ireland, the UK and Canada, it was reported that intersectoral services often operated in silos with adolescents not receiving the care they needed. This indicates a gap in the provision of comprehensive adolescent mental health care in developed countries (9,346,347).

The involvement and participation of adolescents in the design of such services and interventions is critical (19) despite there being a paucity of evidence on adolescents participating in the development of services, policies and training of health care providers (348). This would ensure that the service is person-centred with adolescent service users empowered, and the goals relevant and tailored to meet their needs (348,349).

Intersectoral collaboration can be an enabler to adolescent mental health services, facilitating access to and use of these services. Given that adolescents are



exposed to diverse settings (e.g., school, religious services, sport) and that they are often hesitant to use health services, there are opportunities for assistance with other sectors, such as education, social development, sports and justice (339,340,344,350-354). In a scoping review, evidence pointed to intersectoral collaboration (between health, education, sports, and the judicial and social systems), through meetings and trainings, as a way to develop promotion, prevention and early detection strategies and increase access to care for adolescents (19). When mental health services collaborate with and implement mental health interventions in other sectors (such as education and sports), this is associated with greater mental health literacy, decreased stigma, reduced early school leaving and improvements in adolescent mental health outcomes (88,323,345).

#### Lack of Adolescent Mental Health Data and Research

There is a lack of mental health surveillance, data collection and research on adolescent mental health, particularly in LMICs. Poor adolescent mental health surveillance has led to a mental health data gap, whereby determining the burden of adolescent mental health conditions is a challenge (324).

At the same time, there is a lack of evidence on culturally sensitive psychological-based interventions and medications in LMICs, especially in terms of their effectiveness and efficacy (324). This lack of surveillance, data collection and epidemiological research on adolescent mental health has affected determining the true magnitude of cases in the health care system and the population (355).

#### Barriers for Adolescent Service Users

According to the WHO (2020), the global median number of child and adolescent mental health visits in outpatient facilities was estimated at 1096.1 (per 100,000

population). These estimates ranged from 429.6 visits at hospital-based outpatient facilities to 1096.1 visits at community-based outpatient facilities (per 100,000 population) (322).

### Stigma and Cultural Conceptualisations of Mental Health

For adolescents and their families, the stigma and discrimination associated with mental health disorders, as well as how adolescents, families, communities, and health services conceptualise emotional suffering and distress are significant barriers to access and use of quality mental health services (9,18). Even in well-resourced contexts where mental health services are available, social and cultural conceptualisations of mental health influence the uptake and subsequent coverage of adolescent mental health services (18).

Stigma is defined as concealing or averting certain behaviours or actions out of fear of social ostracization and discrimination (356). It has been posited that stigma occurs at the structural (organisation, resources, quality standards), interpersonal (the quality of engagement between the healthcare provider and adolescent, patient safety), and intraindividual levels (healthcare providers unwilling to assess adolescent mental health conditions, adolescents unwilling to seek mental healthcare services) (357).

In a systematic review, Aguirre-Velasco and colleagues (2020) found that family beliefs about mental health services influenced adolescents' continued service use. Contributors to these beliefs included previous negative experiences, stigma, a lack of trust in health care providers, limited mental health literacy (whereby individuals know about mental health, their own mental health and the services available to them and have the capacity to recognise, manage and prevent mental health conditions) (358,359) and a belief that the treatment will not help, as well as communication problems with services (326). As mentioned above, families face OOP costs

associated with adolescent mental health services which may deter adolescents from continuously using the services (19).

Adolescents are often less-experienced users of mental health services, with inadequate mental health literacy, including literacy about quality of care. They value privacy, confidentiality, and patient-centred care, which includes respect, high-quality communication, and a strong relationship with therapists, in which the therapist is responsive to the adolescent's needs. They also are inclined to avoid judgement or embarrassment, and fear that their parents will be informed, which influences their uptake of health services (273).

#### Facilitators to Adolescent Mental Health Services

There are several enablers to the provision of mental health services, which can help inform interventions and strategies to improve adolescent mental health outcomes.

#### Task-shifting

Advantages of task-shifting have included increased access to mental health, greater distribution of the workload particularly for mental health specialists who are not in great supply in LMICs. Evidence from a review of developing countries showed that task-shifting (whereby health care providers with fewer qualifications are trained to deliver mental health services delivered by specialist mental health care providers) (353), can increase access to primary and secondary level mental health services (9,10,19,318,338,340,345,350,351,361–362). Task-shifting alleviates the overburdened workload of specialist mental health care providers and builds on the limited availability of mental health specialists in LMICs. It also takes advantage of the existing health care provider workforce by not only training general health care providers, but also training non-health care providers (community members, teachers,

religious leaders) to identify, screen, and manage adolescent mental health cases. This leads to a greater proportion of cost-effective and sustainable human resources in LMICs (9,19,318,338,345,350,351,361–362).

In a systematic review on task-shifting, disadvantages included issues related to confidentiality, staff burnout, setting professional boundaries and staff turnover (341). For example, in rural areas and small communities, confidentiality in mental health task-shifting was shown to be a concern in terms of client confidentiality, finding confidential spaces or conducting home visits with families and friends (342–344). Similarly, previous studies have shown that with peer counsellors there have been challenges with setting boundaries with clients, or struggling to set boundaries with clients who have substance abuse issues (345,346).

#### Telemental Health

The advantages of telemental health include greater accessibility, improved patient satisfaction, reductions in no show rates and stigma, and a more efficient and cost-effective alternative to in-person therapy (347)(348) (363). Remote mental health assistance leads to improved patient satisfaction, reduced health care costs and is effective in evaluating and analysing mental health conditions (363). Adolescents are early and avid users of information technology (364,365). As such, telemental health can provide an entry point to the health care system, particularly in low-resource settings and within the context of COVID-19 (366). Telemental health provision has been shown to be associated with a reduction in stigma and a lower no-show rate among adolescents (324,367).

However, there are several disadvantages to telemental health in terms of privacy, confidentiality and safety. For example, ensuring that telemental health services are delivered to the adolescent service user in a safe space that is private. In

low-resource settings, some families may have one technological device to share among all members. They also may have multiple generations of family living within the same household. As such, these aspects could adversely impact the adolescent's privacy and confidentiality. Relatedly, on the provider's side, it is critical that they deliver virtual services in a clinical space designated for telemental health care to ensure privacy and confidentiality (324,367,646).

### Quality in Health Care

The Institute of Medicine (IOM) in the US and the WHO define quality healthcare as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (368). The IOM (2001) identified six core dimensions to quality of care, including efficiency, equity, patient-centeredness, safety and timeliness (368). According to the WHO (2015), integrated people-centred health systems are those that meet people's needs across the life course, through the promotion of safe, timely, equitable, effective, efficient and quality health services (369).

Good quality of care leads to reductions in morbidity and mortality; patients' needs being met; improved health outcomes; longer life expectancy; equitable health services; better quality of life; patient and community empowerment; positive patient experience; trust, value and confidence in the health system by patients and healthcare providers; economic benefits and a supportive health service environment with capable healthcare providers (370). Kruk and colleagues (2018) have argued that adolescents and those with mental health disorders experience worse quality of care (370). Yet, there is a paucity of evidence on adolescents experience of quality of care in LMICs, illustrating how adolescents are neglected from the global public health agenda. Given this, there needs to be research to determine the quality of care

provided to adolescents, adolescents experience of quality of care and whether quality of care is worse among adolescents with mental health conditions compared to other population groups. This will be explored in **Chapters 4 & 6**.

There are also economic implications associated with poor quality healthcare. This includes health system costs as well as costs to adolescents, families and communities in terms of patient harm (and potential long-term disability and lost-productivity) and correcting complications (such as medication error) due to poor quality of care (327). Akachi and colleagues (2017) argue that there is also an ethical component to quality healthcare. Specifically, the lack of routine assessment on patient safety and patient harm; the lack of evidence on whether there are wealth inequalities in the quality of care received; and how to define a minimum level of quality in settings with limited health resources (371).

The *Lancet Global Health Commission for High Quality Health Systems* (2018) developed a conceptual framework of quality healthcare using three domains. The Commission defines a quality health system as one that optimises health care. This takes place when health systems (i) respond to the population's needs; (ii) provide care that maintains or improves health outcomes; and (iii) ensure that all individuals feel valued (370). The WHO, Organisation for Economic Cooperation and Development (OECD) and World Bank (2018) recommend that to improve quality, interventions need to be designed and implemented within the following domains: (i) participation and empowerment of patients, families and communities; (ii) dissemination of information and appropriate education for healthcare providers, service managers, and policy-makers; (iii) specification of quality standards; (iv) revision of front-line clinical practice; (v) implementation of methods and programmes

on quality improvement; (vi) creation of financial and non-financial performance-based incentives; and (vii) establishment of legislation and regulation on quality (327).

All of the initiatives identify similar measurable characteristics to quality of care, including effectiveness, safety, patient-centeredness, timeliness, equity, efficiency (327,370) and integration of care (327). They also recognise the importance of quality healthcare in achieving universal health coverage and results-based financing (371).

#### Quality in Adolescent Mental Health Care

In 2008, the WHO developed the Mental Health Gap Action Programme (mhGAP) with the aim to scale up mental health, neurological, and substance use services in LMICs for all age groups (372,373). The objective of mhGAP is to ensure that governments and key stakeholders allocate financial and human resources to high-quality evidence-based mental health services in their countries. The focus of mhGAP is on non-specialised healthcare settings, with tools to help primary healthcare practitioners assess and manage mental health disorders (372).

To ensure quality of mental healthcare, mhGAP supports the use of the WHO's QualityRights tool, which "provides practical guidance to improve the quality of care provided by mental health and social care services and for promoting the rights of people with mental health conditions" for all age groups (374). The tool seems to have an all-encompassing focus, without specific population targets and was designed to assist adults, children, and elderly people, with no indication of the age brackets of each group. It is also unclear what they mean by quality healthcare, although they refer to the WHO's (2003) Quality improvement for mental health (375).

In 2013, the World Health Assembly adopted the "Comprehensive mental health action plan 2013-2020", which promotes good quality mental health services, or those that use evidence-based protocols and practices (such as human rights promotion,

the protection of an individual's self-worth and self-determination, and early intervention). The action plan is for all age groups, with some recommended actions to Member States on children and adolescents, but no specific actions targeting adolescents only. The recommended actions include: promoting early interventions such as psychosocial community-based care, as well as, building the capacity of health care providers (through pre-service training, mentoring and continuing education opportunities) to provide evidence-based mental health and social care to adolescents. They are broad with no specific strategies on how to implement and evaluate these actions (299).

Adolescents benefit from mental health services that are adolescent-friendly, defined as accessible, acceptable, equitable, appropriate and effective (376,377). In 2015, the WHO developed *Global standards for quality health care services for adolescents* to support health service delivery and quality improvements for adolescents in primary and referral level facilities (359). The aim of these standards was to increase adolescents' use of health services, improve health outcomes, ensure a minimal level of quality, and fulfil their rights to health care (359). There are eight standards, all of which are important to ensure quality in healthcare services. This includes adolescents' health literacy, community support, appropriate package of services, provider competencies, facility characteristics, equity and non-discrimination, data and quality improvement and adolescent participation (359).

**Chapter 4** of this thesis investigates quality in relation to three of these standards: adolescent mental health literacy, appropriate package of services and provider competencies. Notwithstanding the relevance of all the WHO Global standards to quality health services, these standards are particularly important for help-seeking behaviour among adolescents (325,378,379).



1. Adolescents' health literacy whereby adolescents know about mental health and their own mental health (through the health facility), as well as knowing where health services are located and when to go (359).
2. An appropriate package of services in which the health facility meets the needs of the adolescent by providing evidence-based information, counselling, correct diagnoses, treatment and care services (359).
3. Providers' competencies, whereby healthcare providers are competent and provide effective care to adolescents (including respecting, protecting and fulfilling the rights of adolescents) (359).

These standards reflect the possibilities of interactions between adolescents and health services in terms of access, communication and competency of care (370). Yet to date, there has been little research evaluating these standards with no systematic review of the evidence. Recent literature has argued that despite mental health conditions having their first onset during adolescence and young adulthood, these conditions often go undetected (6,98,359,370). Adolescent mental health literacy empowers adolescents to recognise mental health symptoms and conditions, seek services, understand how they can improve their mental health, as well as combat stigma (6,359,370). An appropriate package of services is key to overall quality of adolescent mental health care; it ensures that adolescents receive “adolescent-friendly”, comprehensive (promotion, prevention, diagnosis and treatment) mental health care. Prior evidence has showed that health services for adolescents have focussed on a limited range of services, such as sexual and reproductive health, with the service not equipped to deliver mental services to adolescents (6,359). At the centre of providing quality adolescent mental health care is provider competencies, which includes providers' knowledge, attitudes and skills, as well as the provision of

evidence-based care (359,381,382). Prior evidence has shown that health care providers often do not have the technical competence to promote, prevent and manage adolescent mental health cases (273).

The WHO Global Standards were developed through a rigorous process (383). This involved a needs assessment, the development of the Standards, consultations with experts, assessing the usability of the Standards through regional consultations and a country field test (383). The WHO includes an implementation guide at the national, district and facility levels that identify actions needed to implement the Standards (359). The majority of studies were conducted by universities in health facility settings. In reviewing the implementation guide, health care provider training and use of decision support tools at the health facility were the actions most relevant (359). However, it was unclear the level of involvement of the health facility manager in the studies and whether there was an uptake of the intervention by the health facility after study completion. At the same time, there is a lack of peer-reviewed evidence on the implementation and evaluation of these Standards, as well as a lack of specific and contextualised indicators to evaluate and monitor the Standards. This illustrates a gap between the literature and the Standards. The WHO (2015) does recognise that not all Standards will be implemented, and that the Standards were made to be evaluated and developed further once adapted and implemented at the national and regional levels (383). The WHO Global Standards were chosen for this thesis as a framework to collect data on quality in adolescent mental health services (**Chapter 4**) due to the limited evidence on definitions of quality and quality standards. This framework has been tested in adolescent health services and promoted by the WHO (359).

In 2018, the WHO launched the “Helping Adolescents Thrive” toolkit, an initiative focussed on promoting adolescent mental health and reducing self-harm and other risky behaviours through the delivery of evidence-based, psychosocial interventions. The toolkit recommends four strategies including policies and laws, healthy environments, support to caregivers and psychosocial interventions. Quality of care is mentioned in association with mental health laws and encompasses quality improvement. This is defined as quality of care standards in services (referring to the *Global standards for quality health care services for adolescents*) (359), confidentiality, and responsive assessment and referral systems for early identification and treatment. The toolkit also includes universal, targeted and indicated mental health interventions implemented through multisectoral collaboration and monitoring and evaluation. Quality is mentioned within this strategy as adapting evidence-based psychosocial interventions to the local context while maintaining quality with competent facilitators. However, it is unclear what they mean by competent facilitators. They also promote quality assurance of service providers; again, it is not clear what they mean by quality assurance (384).

Quality in adolescent mental health services faces several multifaceted barriers. For example, the governance, legal, communication and interaction, technical, knowledge and investment aspects of responding effectively to adolescent mental health needs have been limited (335,379,385–386). This could be attributed to the lack of evidence on the health, social, and economic benefits of investing in adolescent mental health to ensure that policy- and decision-makers prioritise and invest in adolescent mental health care (92). Other barriers are outlined in table 1.

Table 1. Health Service Barriers to Quality Adolescent Mental Health Services

<p>Health Service Barriers</p> <ul style="list-style-type: none"><li>• Limited financial resources</li><li>• Limited literacy on quality in mental healthcare, with limited or lack of quality criteria or measures</li><li>• Lack of routine assessment of quality in services</li><li>• Limited availability of specialised mental health care providers or those appropriately trained in mental health to engage and respond to adolescents' mental health needs</li><li>• Healthcare provider stigma, as a behavioural barrier to quality mental healthcare</li><li>• Lack of information, education and engagement from the health system to the community about adolescent mental health services and promotion of adolescent mental health literacy</li><li>• Limited adolescent involvement in decisions about their treatment and care plans that are required for patient-centred care</li><li>• Lack of youth-friendly, or people-centred, services that ensure privacy, confidentiality (including confidentiality from parents and other service providers), respect, high-quality communication, and services that are non-judgemental and free of embarrassment</li><li>• Lack of equitable (geographically and socioeconomically) distribution of mental health services</li><li>• Overburdened primary care systems which make it hard to integrate adolescent mental health services</li><li>• Lack of mental health leadership from policy-and decision-makers at local and national government levels to champion quality in adolescent mental health services</li></ul>
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Sources: Knaak S, Patten S, Ungar T. Mental illness stigma as a quality-of-care problem. *Lancet Psychiatry* 2015;2(10):863-4; Saraceno B, van Ommeren M, Batniji R, et al. Barriers to improvement of mental health services in low-income and middle-income countries. *Lancet* 2007;370(9593):1164-74; McPherson A. Adolescents in primary care. *BMJ* 2005;330(7489):465-7; Svirydzenka N, Ronzoni P, Dogra N. Meaning and barriers to quality care service provision in Child and Adolescent Mental Health Services: Qualitative study of stakeholder perspectives. *BMC Health Serv Res* 2017;17(1):151.

Despite a growing interest and investment in adolescent mental healthcare services, and the quality of such services, evidence on care quality and its effectiveness remain limited (369). There is particularly poor information about how quality mental health services for adolescents should be developed and organised, clinicians trained and health facility interventions implemented to improve adolescents' mental health outcomes and meet their needs (385,387,388). This gap is particularly

relevant for adolescents in adverse family, social and environmental circumstances (389,390). This will be explored in **Chapters 4 & 6** of this thesis.

#### 1.3.2.2. Structural Actions

Despite the importance of mental health policies, there is a paucity targeting adolescents, effectively leaving them off of the political and public agenda and further contributing to the burden of disease (291,292). Evidence from a systematic review (350) on challenges that LMICs face in developing and implementing child and adolescent mental health policy showed an insufficiency of adolescent mental health policies in LMICs. Not only was there an absence of policies, but also countries that did have policies faced challenges in implementation due to feasibility and sustainability issues (355).

Belfer (2007) posited that this policy gap is responsible for the failure of mental health systems to reach adolescents, associated with barriers to care and the lack of adolescent-friendly health services (291). At the same time, adolescents do not have political or economic influence, their voice is often ignored and, as such, their rights are often violated (293). They also are often not invited to participate in the design of policies and plans that affect them (9). As well, there are greater financial resources for adult mental health care services compared to child and adolescent mental health care (320). Contributing to this is the lack of epidemiological data and research on adolescent mental health, which would help inform policy efforts (293).

For countries with a national adolescent mental health policy, the policy may not translate into an adolescent mental health programme or strategies (352). Prior literature has argued that a lack of political will; low public health priority; and barriers (e.g., a lack of resources) to designing, coordinating and implementing adolescent

mental health programmes based on these policies may not materialise, further leaving adolescents off the agenda (9,19,43,292,341).

Policies and legislation on adolescent mental health will be investigated in **Chapter 6** of this PhD in low-resource, violent neighbourhoods of São Paulo city, Brazil.

#### 1.4. Rationale for Thesis

My interest in adolescent mental health and mental health services in resource-limited settings arose from reflections on the theoretical and empirical evidence on mental health during this stage of life, as well as personal experience. I believe mental wellbeing is critical for an individual's capacity to function and cope in their personal and social lives. And as has been illustrated above, adolescence represents an opportunity to intervene and prevent potential poor health.

Specifically, I was interested in investigating quality in adolescent mental health care, and how quality in adolescent mental health services has been conceptualised and implemented. Quality is promoted as an important aspect of service delivery, yet there is a paucity of evidence on quality in adolescent mental health services (370). And given the age of onset of mental health conditions, I believed it important to understand how mental health services are responding and providing quality care (if at all) to this age group. I aimed to address this gap in **Chapters 4 & 6** of the doctoral thesis.

At the same time, I was interested in identifying how exposure to social and individual risk and protective factors affect adolescent mental health in limited resource and violent contexts. Specifically, how these factors interact and influence mental health outcomes and if this information could be used to inform future interventions to prevent mental health conditions and protect adolescents during this

stage of life. To this end, I explored the roles that social support and gender play in the association between exposure to violence and adolescent mental health (**Chapter 5**).

Furthermore, I was interested in how mental health services were delivered to adolescents in resource-limited and violent settings. This included exploring quality and identifying the barriers and enablers to the provision of mental health services to adolescents. Identifying factors that influence the quality of adolescent mental health services, as well as factors that potentially influence their mental health needs being met, could help address the treatment gap and be used in the development of interventions. I explore this in **Chapter 6**.

My interest in the topic also stems from personal experience. I majored in Psychology (B.A.) during my undergraduate studies at Concordia University in Montreal, Canada and have a Master's in Public Health at the University of Michigan in Ann Arbor, US. Prior to starting my PhD, I was an Adolescent Health Specialist, conducting research on adolescent health at the World Bank and Pan American Health Organization, Regional Office of the World Health Organization. I worked in resource-limited settings, predominantly in Latin America and the Caribbean. As such, conducting my thesis on adolescent mental health and mental health services was a perfect merging of the theoretical and empirical considerations with my personal experience.

## 1.5. Thesis Aim and Objectives

### 1.5.1. Aim

The doctoral thesis aims to investigate adolescent mental health and how mental health services respond to the mental health needs of this population group in São Paulo city, Brazil.

### 1.5.2. Objectives

Specifically, I will:

1. Systematically review the global literature on quality in adolescent mental health services, describing the evidence and challenges.
2. Investigate specific social determinants of mental health and individual mental health risks and protective factors by analysing the role that perceived social support plays in the association between exposure to violence and adolescent internalising symptoms, across São Paulo city;
3. Explore healthcare providers' definition and perception of quality of mental health service delivery in primary and secondary level services, to adolescents in socioeconomically diverse and challenging districts (Campo Limpo and Paraisópolis) of São Paulo city, Brazil.



## Chapter 2. RESEARCH CONTEXT: SÃO PAULO CITY, BRAZIL

In this chapter, the social and legislative context of São Paulo city, Brazil and the study sites, within which all of the empirical research for this doctoral thesis takes place, are described. This includes a description of the education and health systems in São Paulo city. The organisation of the health system, as well as policies, protocols and guidelines in Brazil as pertains to adolescent mental health are also described. It should be noted that there is no quantitative data available to understand how these policies and services are being implemented (if at all). This challenge is explored further in Chapters 6 and 7 of the thesis.

### 2.1. São Paulo city, Brazil

The empirical research generated from this doctoral study takes place in São Paulo city, located in the southeast of Brazil. It is the most populous and richest city in the country, with an estimated population in 2020 of 12.4 million people (391) (figure 3). The city includes both wealthy districts and informal settlements, illustrating socioeconomic inequalities.

Figure 3. Map of Regions, Subprefectures and Municipal Districts in São Paulo City



Source: Gifex. City of São Paulo subprefecturas. São Paulo, City Hall of the City of São Paulo. Available at: [https://www.gifex.com/detail-en/2009-09-17-5853/The city of Sao Paulo subprefecturas.html](https://www.gifex.com/detail-en/2009-09-17-5853/The%20city%20of%20Sao%20Paulo%20subprefecturas.html)

### 2.1.1. Study Sites

**Chapter 5** of the doctoral thesis is a secondary data analysis of secondary schools across the entire city. Qualitative semi-structured interviews for **Chapter 6** were conducted with health care providers located in seven distinct neighbourhoods, the majority of which were located in the south west zone of São Paulo city within the Regional Prefecture of Campo Limpo.

The Regional Prefecture is composed of the districts of Campo Limpo, Capão Redondo and Vila Andrade. In 2020, Campo Limpo had an estimated population of 688,779 individuals (392). The second largest informal settlement in São Paulo city and the fifth largest nationally, Paraisópolis (located within this Regional Prefecture), had an estimated population of more than 100,000 individuals in 2018 (393). The proportion of black and mixed-race population in these districts (the sum of the black and mixed-raced population divided by the total population of the district, multiplied by 100) was estimated at 41.4% (Vila Andrade), 47.9% (Campo Limpo) and 53.9% (Capão Redondo) according to data from the most recent year available (2010) (392). The Human Development Index in 2010 for the districts of Campo Limpo and Vila Andrade were estimated at 0.80 and 0.85, while Capão Redondo was estimated at 0.78 (394).

These neighbourhoods in the south west zone of São Paulo city were chosen for this doctoral thesis, as there is a diverse representation of socioeconomic levels, contributing to vast inequalities, due to the neighbouring of very low- and low-income families with middle-class and upper-middle class neighbourhoods (395). These neighbourhoods experience a lack of access to essential services; low governmental investment; high levels of poverty; greater exposure to health risks, including

community violence; a lack of cultural and leisure options; and a lower likelihood for social mobility compared to other regions of the city (396,397).

According to the Brazilian Institute of Geography and Statistics (2020) in 2016, it was estimated that 60% of households in Paraisópolis had uneven access to electricity, 25% had use of public water drainage and half of the streets in the settlement were not paved. That same year, Paraisópolis had the highest population density nationally, with an estimated 45,000 inhabitants per square kilometre (398). In 2018, residents complained that the quality of public schools and public transportation were poor; the informal settlement is controlled by drug cartels (399).

The average waiting time for consultations at the Basic Health Unit (BHU), or primary health care clinic, for the general population (using data from internal medicine, paediatrics, obstetrics and gynecology and general practitioners [GPs] from the Family Health Strategy [FHS] team) was estimated at an average of 10 days in Campo Limpo, 19 days in Capão Redondo, and 26 days in Vila Andrade in 2020. Meanwhile, the average waiting time for consultations to see a psychiatrist by the general population was estimated at 39 days in Capão Redondo, 40 days in Campo Limpo and 44 days in Vila Andrade in 2020. The Public-School Socioeconomic Index, which accounts for family income; assets; employment of domestic servants; and the level of education by parents or guardians in 2019 was estimated at 5.05 for Capão Redondo, 5.02 for Campo Limpo and 4.72 for Vila Andrade. The Index ranges in values from 0.00 to 7.00, and the average for São Paulo city was 5.1 (392).

Campo Limpo faces high youth (15-29 years) homicide rates (derived from the total number of deaths from external causes – homicide and legal intervention – for 15-29 year olds divided by the resident population of 15-29 year olds, multiplied by 100,000) estimated at 24.8 (per 100,000 15-29 year olds) in 2018, well above the

average rate across São Paulo city (16.5 per 100,000 15-29 year olds) (392). The youth homicide rate in Morumbi (where Paraisópolis is located, within Vila Andrade) was estimated at 40.3 (per 100,000 15-29 year olds) in 2018, the third highest youth homicide rate in the city (392). It should be noted that although the average homicide rates by district present an indication of the violence levels within the Region, this is not representative of the study sites. The services included in the study were subareas of these larger districts that had a high prevalence of community violence.

### 2.1.2. Violence and Poverty in Brazil

In Brazil, the national homicide rate is nearly five times the world average (30.5 vs 6.4 per 100,000 inhabitants) (400). Adolescents are particularly at risk of violence in the country, with estimates in 2019 suggesting that of every 100 adolescents (15-19 years), 39 of those were victims of lethal violence. Of all the homicides that occurred in Brazil in 2019, 51.3% of deaths were among 15-29 year olds, with an average of 64 young people per day murdered in the country (401). The adolescent population (10-19 years) in Brazil in 2015 represented 2.8% of the world's adolescent population, yet 1 in 3 adolescent homicides globally occurred in this country (402).

In São Paulo city, 7.5% of 12-19 year olds in a 2015 survey reported experiencing some type of violence (insult, threat, physical aggression) within the previous 12 months (403). In 2017, a cross-sectional school-based survey among a representative sample of adolescents (n= 2,702 12-18 year olds) showed that 28.7% of adolescents suffered bullying and 22.8% violence (robbery, physical violence alone, physical violence with a weapon or sexual violence) within the previous 12 months of the survey (79).

Previous global research has demonstrated that adolescent boys have higher community violence exposure than girls (404), yet girls experience greater anxiety and depression when exposed to community violence than boys (405). Indeed, Brazil is one of the top ten deadliest countries for young men (15-29 years) with young men accounting for 93.9% of the total number of young homicide victims (401).

In Brazil, the triad poverty-unemployment-violence has been identified as a major social determinant of poor mental health among young people living in Brazilian cities and similar contexts in LMICs (406). Studies in São Paulo indicate that growing up in a neighbourhood with high levels of poverty hinders educational outcomes, increases the likelihood of adolescent pregnancy and the risk of engaging in criminal activities. The spatial and social segregation of deprived neighbourhoods in São Paulo city limits access to decent labour opportunities because of transportation costs and lack of access to information about decent employment (407).

School violence is also high in Brazil. In São Paulo city, adolescent students (12-19 years of age) in 2017 perceived schools to be violent environments in terms of violence perpetration (28.6%) and bully victimisation (43.4%). The study also found that 36.7% and 39.4% of those who were victimised by violence and bullying considered their own health bad or very bad, respectively (79).

### 2.1.3. The Education System in Brazil

The education system is decentralised in the country, as established by the Brazilian constitution, with different roles and responsibilities at the local, state and federal levels. Municipalities are responsible for early childhood education, primary school and lower secondary schools. To this end, they set policies, employ and manage the development of teachers and principals, and maintain school buildings.

Meanwhile, State governments are largely responsible for upper-secondary schools, while the federal government is responsible for tertiary education (408).

Large inequalities between and within States have been reported in terms of access, quality and resources within the education system. This is evidenced by varying graduation rates and tertiary education levels across the country. Contributing to these inequalities are geographic location, ethnicity and SES (409). For example, in 2015 in São Paulo city, the lower-secondary graduation rate was 93%; by comparison, in the State of Alagoas the graduation rate was estimated at 63%. Similar results have been shown for ethnic populations, with indigenous populations completing 2.5 mean years less than White populations. Rich/poor inequalities have shown that 5% of the poorest population attended higher education, compared to 47% of the richest populations (409).

The system is funded through tax revenues and education funds, with the average educational spending per student varying by municipality and State. Municipalities and States are required to spend at least one quarter of their tax revenues on the education system, while the Federal government spends 18% of the tax income on the system (408,409).

To overcome educational inequalities and increase the share of education funds to poorer areas, the Government established the Fund for the Development of Primary and Lower Secondary Education in 1996. This has involved reallocating funds based on student enrolment through pooling resources from taxes and transfers from municipal and State governments. It also required that 60% of municipalities' education budget be spent on elementary education, thereby making elementary education universal. The Federal Government in 2007 created the fund on Early Childhood Education and Upper-secondary Education with the aim to increase access

and participation in poorer and rural areas, and among indigenous populations (408,409).

According to the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Institute for Lifelong Learning, São Paulo city has approximately 1,500 schools; the average number of years of schooling is estimated at 7.15 years. The city also developed a platform to collect, monitor and evaluate data on the education system (410). The city is a member of UNESCO's Global Network of Learning Cities. These are cities that aim to promote lifelong learning for all. To this end, cities promote learning in families, communities and the workplace; increase the quality of learning; mobilise resources in all sectors to promote learning; and promote the use of modern technology (411). At the same time, to evaluate the education system's performance within the region, São Paulo is working with Latin American educational institutions to support municipal schools. The city is also aiming to implement an online basic education programme for 400,000 students and promote social projects among 13-16 year old adolescents in local neighbourhoods through the Municipal School Curriculum Renovation and Authoring Cycle (411).

#### 2.1.4. Adolescent Health and Mental Health Legislation, Policies and Programmes in Brazil

Historically, there have been several pieces of legislation and policies in Brazil that focus on children and adolescents. This includes the Mello Mattos Code, passed in 1927, that provided legal protection, public assistance and housing to children and adolescents (412); the Minor's Code, passed in 1979, recognised that children and adolescents have a right to family and community life (413); and Law 12594 passed in 2012, which stipulated that the National System of Educational Service must ensure



that socio-educational measures (i.e., community service, probation, formal rebuke, reparation of damage) are provided to juvenile offenders (414,415).

Other policies and guidelines passed that target adolescents include: the School Health Programme (2007) and the National Guidelines for Adolescent and Youth Comprehensive Healthcare in the promotion, protection and recovery of health (2010) (416). The country also promoted the active participation of adolescents and youth in 2017, with the National Council for the Rights of Children and Adolescents issuing a national resolution to State and Municipal Councils to include adolescents in their collegiate and plenary meetings (416). Below is a summary of specific laws, legislation and guidelines on adolescent health, including those that address mental health.

#### 2.1.4.1. The Statute of Children and Adolescents

In 1990, the country passed the Statute of Children and Adolescents Law No. 8,089/90 ECA (417), which ensures the rights of all children and young people to physical, mental, moral, spiritual and social development. Adolescents are defined as those 12-18 years of age. Their rights include the right to respect, freedom and dignity in their development and as subjects of civil, human and social rights. They also have the right to universal and equal access to health services; actions that promote, protect and restore their health; and fundamental rights to privacy, confidentiality and informed consent (417).

Children and adolescents also have the right to defend their rights when their interests do not match those of their parents or guardians. Brazilian law recognises that families and guardians do not have absolute power or right over their child. If the presence of the parent or guardian during a health consultation, for example, prevents the adolescent from fully exercising their fundamental right to health and freedom, this

violates their right to a healthy life. In such cases, the health team must assess the situation and obtain the adolescent's consent to involve the parent or family member. If there are any concerns, the health service should not involve the parent or guardian, and ask the adolescent to appoint someone to their case (417).

At the same time, the Statute emphasises the importance of social support from family and peers; formal education; actions to ensure the adolescent's healthy development; professional, labour and technical opportunities; quality of life; and the freedom to improve their lives, within their economic, political, social, and cultural realities. As such, the State and key stakeholders, are required to protect children and adolescents' social and individual development through social policies, such as universal and equitable access to health actions and strategies, as well as services that promote, protect and improve their health. To this end, the Statute promotes organised and autonomous systems of care for children and adolescents in each territory, with mechanisms for intersectoral collaboration (417).

The Statute also states that the health sector, through the Unified Health System (UHS), should ensure the comprehensive protection of adolescents. Adolescents are seen as not only individuals, but also part of collective health processes involving families, communities, societies and governments. The Statute recognises that an adolescent's health is influenced by their exposure to, and engagement in, risk behaviours due to historical inequalities (poverty, exposure to violence, lack of access to education, labour exploitation) that promote exclusion and discrimination, as well as, their social reality (417).

#### 2.1.4.2. Adolescent Mental Health Legislation, Policies and Guidelines

The country reformed its mental health system in the early 2000s, with a federal law passed in 2001 (Psychiatric Reform Law 10.216) that decentralised the mental health system and recognised the rights of those with mental health conditions. This involved a shift from hospitalisation to community-based services and the creation of and investment in Psychosocial Care Centres (PCC) (418). It also established an intersectoral network of community-based services within each territory to provide mental health actions, with the focus on social reintegration (419,420).

Specific mental health policies passed during this time included Ordinance No. 336/02 (421), which transformed the way adolescent mental health was delivered, with the creation and financing of Psychosocial Care Centres for Children and Adolescents (PCCca) (0-18 years of age). Ordinance No. 1946/03 established a Working Group to implement the National Forum on Child and Adolescent Mental Health Care (422) and Ordinance No. 1,608/04 (423) articulated the Forum's actions: to discuss child and adolescent mental health issues and develop public policies and guidelines (424).

In 2005, the Ministry of Health launched the report "Pathways to Mental Health Policy for Children and Adolescents", which outlined the principles of care for children and adolescents. The report included the mental health rights of children and adolescents; universal access to mental health care; the development of a network of services; the adaptation of care based on the needs of the territory; and intersectoral strategies. Importantly, the development of child and adolescent mental health policies in Brazil, as opposed to those developed for adult mental health, were seen as requiring multiple, intersectoral actions, including social assistance, justice, education, among others (425). Intersectoral collaboration was seen as having coordinated and connected actions with other sectors, tailored to the unique needs of adolescents. The

aim was to promote social transformation, ensure equitable social development, combat exclusion and guarantee quality of life (425,426). To this end, it required sectors to plan, monitor and evaluate practices on child and adolescent mental health (427).

#### Child and Adolescent Mental Health Policy

In 2005, the Child and Adolescent Mental Health Policy was passed. This changed the way mental health was delivered to these population groups, shifting to psychosocial and community-based care (428). It outlined the delivery of a community-based mental health care network for children and adolescents, integrating the guidelines from the Statute of Children and Adolescents. Adolescents were defined as psychological beings with unique needs and rights. This included the right to universal access to services to respond to the needs and demands of each child and adolescent within the territory (428).

Mental health care for children and adolescents was framed as welcoming, acceptable, equitable and responsive; with the provision of referral mechanisms to other services within each territory. The focus of the Child and Adolescent Mental Health policy was on intersectoral collaboration through an organised network of services in each territory. The aim of the network was to address the treatment gap, and the lack of continuity of mental health care among children and adolescents (428). It was believed that intersectoral collaboration would lead to more creative and practical care for adolescents (429). To this end, the provision of child and adolescent mental health care required all involved sectors to articulate child and adolescent mental health services at different levels and intervention complexity (430).

This led to an increase in the Psychosocial Care Networks (PCN) for children and adolescents, established in 2011 by Ordinance No. 3,088/11 (431). Ordinance

No. 854/12 (432) was passed in 2012 and articulated the practices, different points of care, strategies and actions within the PCCca (433).

#### Guidelines on Psychosocial Care for Children and Adolescents

In 2014, the UHS published the “Psychosocial Care for Children and Adolescents in the UHS: Weaving Networks to Guarantee Rights” Guidelines for the child and adolescent mental health policy. Child and adolescent mental health policies, according to the UHS (420), should go beyond the technical biomedical model of treating the adolescent and address the social contexts within which the adolescent resides, promoting their protection. The guidelines promote actions related to welcoming, listening and emancipation, as well as, challenging mental health stigma, improving the adolescent’s quality of life, and ensuring their inclusion and capacity to participate in the community. All services and care points within the network must meet the adolescent’s needs, while providing interventions that promote and restore their mental wellbeing (420).

The guidelines established the following: (i) mental health care should be tailored to each case, as treatment and therapeutic approaches depend on the adolescent’s needs; (ii) the adolescent’s mental health demands (from the adolescent, family, school, intersectoral network) should be evaluated and a shared construction (involving the adolescent, health care provider, intersectoral teams, and family members) of their mental health needs generated; (iii) universal access (an open-door policy) to mental health services should be promoted so that adolescents are guaranteed care that identifies and responds to their needs through a proposed initial intervention and treatment strategies; (iv) referrals and follow-ups should be provided; (v) an intersectoral network of services that guarantees actions, strategies and access to mental health services should be outlined; and (vi) actions that address the social

context within which the adolescent lives, including social support networks, school, places of leisure etc should be developed (420).

According to the Guidelines (2014) (420), health care providers are required to promote and protect the provision of adolescents' rights to privacy and confidential health services. They are also required to provide welcoming and care services tailored to the adolescent's unique needs, regardless of parent/guardian consent.

The UHS recognises that health is influenced by access to goods and services, equity and respect for racial, ethnic and cultural differences. It also acknowledges the role that social determinants play in the development and generation of mental health conditions. The Guidelines recommend health and social services intervene on the social determinants of health. For example, adolescents in poverty and situations of vulnerability are at an increased likelihood of poor mental health. The UHS promotes intersectoral health promotion strategies to promote the physical, mental and social wellbeing of the adolescent, as well as the right to access all essential care provided by the State (including health, education, culture, housing, community life, family etc) (420).

Within all levels of the UHS, health care providers must comply with strategies to ensure comprehensive care, as well as strengthen the delivery of health promotion actions, particularly in territories that have articulated intersectoral partnerships. Adolescents are encouraged to participate in these actions. The provision of quality and effective services (from basic to specialised care and urgent services) for adolescents are also promoted to ensure that the needs of adolescents are met (420). Quality is conceptualised as an aligned intersectoral network that protects the rights of adolescents. It also relates to the principles of humanisation, or communication

between service users and services; the recognition that care and management are the same; and the co-responsibility of care between service users and services (434).

#### Lines of Health Care for Adolescents and Youth in São Paulo

In 2018, the State of São Paulo launched “Lines of Health Care for Adolescents and Youth for the Unified Health System in the State of São Paulo” (2018) to ensure comprehensive health care for adolescents and young people in outpatient services in the UHS. The Guidelines recognise adolescents as those 12-18 years of age (435).

To guarantee access to health services for adolescents, the Guidelines recommended services expand hours of operation to include evening and weekends for vulnerable adolescents. They also suggested allocating rooms and spaces, as well as, developing activities specifically for adolescents at health facilities to identify and respond to adolescents’ health needs, and ensure the reception, confidentiality, and the provision of coordinated, multidisciplinary care (435).

The training of health care providers who work directly with adolescents (e.g., residence, specialisation, courses and programmes on adolescence), as well as continuing education opportunities (such as, sexual and reproductive health, growth, puberty, violence, substance abuse, human rights, education, etc) were also promoted. The Guidelines also stated that educational opportunities should include methodologies aimed at improving dialogue with adolescents (e.g., educational groups, workshops) and inter- and intra-sectoral action to coordinate care. (435)

To provide care to adolescents, the Adolescent Health Booklet (436) was recommended for use to health care providers to obtain essential information on vaccination status, weight and height and to monitor growth and development. Clinical protocols on the care of adolescents developed either by the service itself or other Ministry of Health (MOH) protocols (including the State of São Paulo, health region

protocols, municipal protocols, professional society protocols) were promoted. Specific instruments during an initial consultation were recommended to use with the adolescent and their family (435), although these instruments were not specified.

Dialogue between the health care provider and adolescent patient was also encouraged. The health care provider, for example, should identify the reason the adolescent is seeking care, and determine their risk factors and health needs. The objective, according to the Guidelines, is to provide care that promotes their growth and development, identify mental health issues, investigate suicide risk, substance use, violence and eating disorders, among other health issues. The BHU and PCCca should adopt actions to actively search for vulnerable adolescents who do not seek health care services. The development of intersectoral partnerships with institutions and social facilities in the territory were also recommended (435).

The Guidelines established that the BHU and PCCca must provide care for adolescents 12 years of age and older without the presence of their parents or guardian. This includes reception; service registration; providing a schedule of activities; initial consultation; primary health care or care with higher-level professionals; educational and therapeutic groups; home visits by Community Health Agents (CHA) and other health providers; sexual and reproductive health services among other services (435).

Privacy and confidentiality were highlighted within the Guidelines, as these were recognised as being valued by adolescents. They recommended health care providers address privacy and confidentiality; help them navigate services and the network; support adolescents in the identification of symptoms and vulnerable situations; provide information on their rights; and determine their needs and course of treatment (435).



Various suggestions for group activities were provided including: therapeutic groups; support groups, socio-educational groups; manual, craft or artistic activities; sociocultural and/or sports activities; peer-led actions; activities for parents, guardians, family members and partners; and activities outside of the unit. Topics covered in individual or group activities were suggested as: alcohol, food, art and culture; physical activity, sports, bodily practices; vaccines; inclusive practices and policies; rights and citizenship; racial discrimination; substance abuse; school studies; LGBTQ topics; parenthood; social participation; environment; perceptions of one's own body, self-esteem, standards of beauty; future plans; puberty; self-care; social relationships (family, friends, dating); gender relations; mental health; reproductive health; work; violence, among others (435).

The Guidelines recommended services develop specific actions to approach and assist young people in situations of greater vulnerability, including mental health, substance abuse and violence (435). They don't specify, however, which actions the services should adopt or how to develop these actions.

#### 2.1.5. Organisation of Mental Health Services in São Paulo city, Brazil

##### 2.1.5.1. The Unified Health System

The Brazilian UHS was created in 1988. The mandate of the UHS is to offer free and universal care to all. It is based on the principles of universality, comprehensiveness and equity. It also promotes a social medicine approach, which has historically been encouraged in the Latin American and Caribbean region (437,438). The management of the system is decentralised, with municipalities in charge of most primary care services, in addition to some hospitals and other facilities

(439). In 2015, approximately 63% of the Brazilian population depended entirely on its services (440,441).

The UHS recognises that mental health conditions are due to different biological, psychological and social exposures within families, communities and societies (420). Comprehensive health care for adolescents should involve intersectoral participation, the development of actions and strategies, and guaranteeing their protection and rights. This is conceptualised as access to education, sports, housing, leisure and culture, quality of life, and opportunities to thrive. The UHS recognises that social support, including interpersonal relationships and support networks for adolescents and their families are fundamental to the adolescent's health (420).

#### Health System Financing, including Mental Health

The Brazilian health system is an interconnected mix of public-private health services (442). The UHS is financed at the federal, state and municipal levels through health budgets. This includes the Primary Care Quota, which are primary care funds transferred from the MOH to municipalities based on a per-person amount. It also receives funds through taxes and social contributions (for specific programmes) divided between federal, state and municipal levels.

Financing for the UHS is not sufficient and has chronically been underfunded. Estimates from 2006 showed that less than 18% of social contribution and tax revenues went to the UHS. The health system also includes a private (for profit and not-for-profit) sector arm financed through public and private funds, as well as a private health insurance arm that includes various health plans, tax subsidies and insurance premiums. Private sources of funding for the Brazilian health system also include OOP

and employers' health care spending. The private sector may be contracted by the UHS to provide services. These services are financed partly by the UHS and the private sector (442).

The mental health system is underfinanced within the UHS (443,444,445). Despite funding for mental health residing largely at the municipal and state levels, chronic federal underfunding has severely stretched municipal and state mental health budgets and allocation of resources. Spending fell in 2016 on mental health and has been subsequently stable. In a 2020 study conducted by Fiocruz Brasilia, results showed that federal spending on mental health for the general population was about R\$ 2.6 billion in 2019. The figures estimated for 2019 were similar to federal spending in 2009. The government's total expenditure on mental health fell as well: from 2.7% in 2001 to 2.1% in 2019 of GDP, or R\$ 12.50 per person (446).

Trape and colleagues (2017) reported that there is a lack of data on mental health expenditure at the municipal and state levels. Further, they showed that payment of mental health services was tied to the complexity within the mental health system, with more complex care receiving larger budgets (444).

Barbosa and colleagues (2020) analysed the mental health expenditure between 2008 and 2017 based on data from the Institute of Geography and Statistics (2017), finding that in the southeast region of the country (where São Paulo is located) the mental health expenditure for the UHS increased approximately 430% in 2017. The largest increase in mental health expenditure was seen in large cities (with populations over 1 million individuals). This was attributed to increased total health spending at the municipal level, while the federal government decreased its health expenditure. The quantity of all PCCs located in the southeast region of Brazil also increased by 96% over the same time period (from 537 in 2008 to 1,053 in 2017) (447).

Below is a description of the primary and secondary care levels within the UHS. These are a focus of this doctoral thesis (**Chapter 6**).

#### 2.1.5.2. Basic Health Units

The public primary health care sector, or the BHU, is the point of entry to the entire Public Health Care Network in Brazil. Regulated by the municipalities (448), the aims of the BHU are to promote health and wellbeing while delivering comprehensive, preventive services in the community, in an easily accessible location (440).

Primary health care is a priority within the UHS and is organised according to the Family Health Strategy (FHS) policy, created in 1994 (449). The health care system was reformed in 2006 to focus on primary health care, utilising the FHS as the main strategy. The basic FHS team includes a general practitioner, nurse, nurse assistant and four-to-six full-time CHA. This team is the point of contact for primary health care services and the network within the UHS. They are responsible for catchment areas that should cover approximately 1,000 households each (441,449).

In 2008, the primary health care system expanded its services to include the Family Health Support Nucleus (FHSN). FHSN teams are composed of specialised health care providers that deliver clinical health care and work collaboratively through case discussions and shared care with FHS teams. For adolescent mental health, these actions include therapeutic groups, family interventions and support to therapeutic projects (420). They work collaboratively with other service levels and sectors in the UHS network in the territory to develop the adolescent's work plan and interventions (441). They also work collaboratively with service users and families to develop individual or collective actions. FHSN teams also support the Health Care Networks (HCN), an organisational arrangement of health actions and services at

different levels within the UHS. The aim of the HCN is to provide integrated and intersectoral care and involves managerial, logistical and technical support. Specialists allocated to the FHSN team at each BHU depend upon the needs of the community and catchment area it serves. It includes up to 19 health professional categories including psychiatrists, psychologists, occupational therapists, social workers, nutritionists, physical educators, among others (450).

Primary health care services work at the individual and collective levels, through health education actions. Strategies have been developed to promote healthy growth and development, including sexual and reproductive health, mental health, the prevention of substance use, and reducing morbidity and deaths due to violence and accidents (420). Patients are referred onto more specialized services when needed, with BHUs providing most of the care in the health system (448).

As the BHUs are located in communities, this provides an effective strategy to build relationships and bond with adolescents. Intersectoral, coordinated and co-responsible actions within the adolescent's social and educational environment are promoted, involving families in these actions. The aim is to ensure greater opportunities and quality of life for adolescents (420). Depending upon the municipality, some BHU provide patient follow-up programs and help facilitate discussions with families about their adolescent's mental health care needs (430). The BHUs are managed by public, private or non-profit organisations within each municipality (439). In 2017, there were 28 BHUs in the Campo Limpo region (448).

#### **2.1.5.3. Psychosocial Care Centres for Children and Adolescents**

Created in the early 2000s with the Psychiatric Reform Law, the goal of PCCs are to provide interdisciplinary, community-based mental health care services,

responding to the needs of the territory. The PCC is the point of entry to the mental health system, whereby services are provided to individuals with severe and persistent suffering or mental health conditions (424,425).

The PCC provides differentiated care strategies and services to vulnerable populations, including adolescents. There are different types of PCC, including those that target children and adolescents (PCCca), adults (PCC) and those that abuse alcohol and drugs (Psychosocial Care Centres for Alcohol and Drugs, PCCad). More severe cases are referred onto hospitals while less severe cases are referred to the BHU. The PCC provides a mix of outpatient and partial hospitalisation services (418). Funding for all PCC is provided through the federal government (as outlined in Regulatory Ordinance of 2002) (451).

According to the Mental Health Atlas (2017), Table 2 provides data on mental health human resources and infrastructure in Brazil (446).

Table 2. Mental Health Human Resources and Infrastructure in Brazil, 2017

	Distribution
Human Resources for Mental Health	
Psychiatrists	3.16 (per 100,000 population)
Psychologists	12.37 (per 100,000 population)
Mental Health Nurses	34.95 (per 100,000 population)
Social Workers	6.61 (per 100,000 population)
Occupational Therapists	2.86 (per 100,000 population)
Total mental health workers	317.45 (per 100,000 population)
Mental Health Infrastructure	
Community-based/ non-hospital mental health outpatient facilities	2,232
Outpatient facilities (children and adolescents)	223
Mental health hospitals	143
Mental health hospital beds	9.79 (per 100,000 population)

Source: World Health Organization. Mental health atlas. Geneva: WHO; 2017

For adolescent mental health care, evidence from 2008 reported that Brazil had approximately 300 child psychiatrists. By comparison, there were 18,763 psychologists working in the UHS (453). A key challenge is the paucity of evidence on the type and quality of mental health care provided to adolescents in the country (452).

The delivery of mental health services through the PCCca follows similar procedures. At service initiation, children and adolescents are interviewed by a health care provider for an initial diagnosis. If the adolescent meets eligibility criteria for the PCCca, such as a specific mental health diagnosis, they are treated by a multidisciplinary team which includes a psychiatrist, neurologist or paediatrician trained in mental health; one nurse; four higher level health care providers (psychologists, occupational therapists and social workers, pedagogue, physical educator or other professional for the therapeutic project); and five mid-level providers (nursing technician/assistant, administrative technician, educational technician and craftsman) (447). Eligibility criteria varies by region, dependent upon the catchment area needs. The adolescent's treatment plan involves developing a unique therapeutic project, dependent on their needs and involves the multidisciplinary health care provider team, the adolescent and the family. The project includes consultations, clinical exams, medications and participation in group activities and workshops. The aim of the PCCca is to ensure the reintegration of the adolescent into society, while strengthening families and communities (451).

To provide responsive and effective care, there are mini-teams within the PCCca that respond to the needs of children and adolescents within the community. These mini-teams are also responsible for liaising and articulating network services with 10 BHUs in the community, and maintaining contact with, for example, the Institutional

Shelter Service for Children and Adolescents, the adult PCC, and the PCC for alcohol and drugs (399).

### Psychosocial Care Network

The PCCca is part of the Brazilian PCN, created in 2011 (under Ministerial Order 3.088/11). Its objectives are to expand access to psychosocial care; promote referrals for those with mental health conditions to various care services; and coordinate and integrate the network's care through reception, monitoring and emergencies. Based on the territory's needs, the network includes not only the PCCca, but also therapeutic residential services, centres of coexistence and culture, reception units and beds in general hospitals (433,454).

More specific objectives include: promoting the mental health of children and adolescents; preventing and reducing the damage caused by substance use and abuse; promoting the rehabilitation and integration of individuals with mental health conditions and substance abuse issues to access work, income and housing opportunities; disseminating information about patient rights, including prevention and care measures of available services; regulating and organising the demands and care flows of the PCN; and monitoring and evaluating the quality of services through effectiveness and comprehensiveness of care (420).

Child and adolescent mental health policies are operationalised through the PCN. To this end, teams, services and health care providers deliver care and advocate for the articulation of services, and greater access and bonding with adolescent patients (455).



## PCCca Campo Limpo

For the current doctoral thesis, the majority of the empirical research conducted in **Chapter 6** is focussed on the PCCca in Campo Limpo. This serves all of the children and adolescents 0-18 years of age in the Regional Prefecture of Campo Limpo. It opened in 2014 with the aim to serve children and adolescents with serious mental health conditions, and those experiencing psychological suffering and substance abuse issues (399).

PCCca Campo Limpo provides welcoming services to children and adolescents, individualised services that respond to the needs and demands of children and adolescents, individual and family assistance and group therapy. They also carry out community actions, including meetings with the FHS and FHSN teams at the BHUs; health service network meetings (home visits, shared services and shared groups); school meetings; intersectoral network meetings (monthly meetings of PCN services); and interactions with the Forum on Child and Adolescent Mental health of São Paulo city (399).

According to Ministerial Ordinances No 336/2002, 189/2002, and 854/2012, PCCca Campo Limpo offers different levels of care including: (i) daytime services for those experiencing a mental health crisis (due to family or community conflicts) using a crisis-management framework and focussing on improving interpersonal relationships; (ii) intensive care for those with mental health conditions that require daily, intensive services (three times per week); (iii) semi-intensive care for those who participate in weekly activities (i.e., group activities, once or twice per week); (iv) non-intensive care for those who require biweekly or monthly follow-up; and (v) network care wherein care is provided at a distance, and the PCCca team is in contact with the BHU and other services to ensure the adolescent and family are navigating the

system, continuing indicated care and accessing and utilising the recommended services (399).

In a review of medical records in 2017, it was found that most children and adolescents at PCCca Campo Limpo received semi-intensive care, with autism spectrum disorder and developmental delays most likely to fall within this category. Those in the intensive care group included psychotic disorders, severe depression and personality disorders. Non-intensive care group cases were in the process of being discharged, with monitoring of symptoms (399).

In 2016, PCCca Campo Limpo implemented a guideline that adolescents and their families, as part of the adolescent's therapeutic plan, should participate in group activities at the PCCca. This was decided through observation and team discussion, as they found the adolescent's development improved with family involvement. These group activities could be shared or separate. Some of the group activities have included anger management; how to accept rules and limits within their environment; and soccer, crafts, and writing etc (399).

#### 2.1.5.4. Interaction between BHU and PCCca

An important component to intra-sectoral collaboration is the relationship between the BHU and PCCca. Access to child and adolescent mental health care is dependent on the BHU, as it is located within the community and is the entry point to the health system. It promotes quicker reception and is less stigmatising for adolescents to seek care. Studies have showed how the FHS strategy has increased access to care (456–458), while the PCCca has been influential in organising the network of care (459,460). Teixeira et al (2015) have argued that the provision of mental health services in the BHU, integrated with an expanded care network, could

decrease excessive referrals and increase treatment adherence for adolescents and families. When in collaboration with the PCCca, these actions could lead to improved care flows, continuity of care, shared care strategies and improved effectiveness of mental health actions (461).

According to the Lines of Health Care for Adolescents and Youth in the State of São Paulo (2018), adolescents who seek services first at a PCCca (instead of the BHU) must be welcomed and assisted as needed. However, the Guidelines recommend that the adolescent must always be referred to the BHU in their territory, as this increases the adolescent's access to care. Also, the BHU's role is to provide and coordinate care within the health system (435).

Within each mini-team at PCCca Campo Limpo, they coordinate care with the BHU. As a result, families that seek care at the PCCca are also assigned to the same health care provider at the BHU, so that there is a continuity of care for the adolescent and family at both service levels (399). Intra-sectoral and intersectoral collaboration and referral are promoted between the BHU and PCCca. Actions within the municipality and the health care network, meetings and workshops with key stakeholders on adolescent health are also promoted (399).

To date, no study has been conducted in São Paulo city investigating adolescent mental health needs and how health services are responding to these needs, particularly in low-resource and violent settings. This provides an important window of opportunity to better understand how adolescent mental health services are delivered and responding to adolescent mental health needs in a resource-limited context, and one the current doctoral thesis intends to fulfill. Evidence generated from this PhD will produce valuable information for local and international policies and programmes on the delivery of adolescent mental health services in resource-limited

and violent settings. The following chapter describes the methods for this doctoral thesis.

## Chapter 3. Methods

This chapter explains the methods used for each results chapter of the doctoral thesis, providing details on the study designs, data collection procedures and data analyses. This is followed by ethics approval and the reflexivity statement of the thesis.

### 3.1. Study Design for the Thesis

A mixed methods study was conducted for this PhD through the collection and analysis of both quantitative and qualitative methods. Mixed methods for this doctoral thesis was chosen, as opposed to using quantitative or qualitative methods alone, as it allowed for a comprehensive assessment of the research questions which were broad and complex, investigating adolescent mental health needs and the provision of mental health services within low-resource and violent settings (462). Further, it provided an opportunity to combine the positive aspects of quantitative and qualitative methods, generating a more comprehensive understanding of adolescent mental health needs and actions, while ensuring scientific rigour throughout (463).

Although quantitative research provides generalisable findings with large, representative samples and allows for testing and confirming hypotheses related to adolescent mental health needs, it is harder to explore the questions of why and how services are delivered, as well as understand the cultural, environmental and societal realities experienced within these settings. At the same time, qualitative research explores these questions and realities, and reflects the experiences of health care providers. However, it is limited by smaller sample sizes compared to quantitative methods (462–464).

As it relates to my overall PhD, I believed that conducting a mixed methods study would give me a broader skill set. In that I learned how to use and analyse large datasets, testing and confirming hypotheses with the quantitative analysis (**Chapter 5**). At the same time, I learned to design semi-structured interview guides, train local field research teams and use and analyse qualitative data (**Chapter 6**). These skills will be useful for my future career in global mental health.

### 3.2. Systematic Review of Quality in Adolescent Mental Health Services

To explore specific mental health actions, **Chapter 4** is a systematic review of the global evidence on quality in adolescent mental health services using the WHO Global Standards of adolescent mental health literacy, appropriate package of services and provider competencies (359). The rationale for conducting a systematic review was two-fold: (i) systematic reviews are useful for rigorously evaluating and synthesising the evidence base, providing explicit and reproducible methods as well as efficient access to the evidence (465); and (ii) no prior systematic review had been conducted on this topic. In addition, there is no consensus on the definition of quality in health services (386). Given the important role that quality plays in adolescents seeking, receiving and continuing care (368), conducting a systematic review was the only way to assess the literature and bridge this gap.

As it relates to the overall aim of this doctoral thesis, the systematic review describes the limited evidence on quality in adolescent mental health services and how mental health services are limited in their response to providing quality services to meet adolescents mental health needs.

As it relates to my PhD, conducting a systematic review was an important skill set for me to learn, as it provided me with skills to systematically search, analyse, appraise, synthesise and critically evaluate the evidence. It also allowed me to become familiar with methods and theories on quality in health services and helped me identify gaps in the research that my PhD could address (465).

For this systematic review, the WHO Global Standards for quality health care services for adolescents was used, focussing on standards for mental health services (359) (the protocol was registered with PROSPERO: CRD42020161318 and is in Annex 2).

### 3.2.1. Selection criteria

Inclusion criteria were quantitative and mixed-method studies that evaluated or assessed quality measures as defined by the WHO Global Standards (adolescent mental health literacy, provider competencies, and appropriate package of services) applied to existing mental health services targeted to adolescents (10-19 years) for depression, anxiety, and PTSD. The *Lancet Global Health Commission for High Quality Health Systems* (370) conceptual framework was used to choose three of the WHO quality Standards. Although all dimensions of the conceptual framework are relevant to a high-quality health system, focussing on the population that the health service is serving, the delivery of competent mental health care and systems and processes of providing care was of most interest (389).

Depression and anxiety are the most common mental health outcomes in adolescents living in challenging environments (61–67). PTSD is also associated with living in challenging environments. There is evidence that exposure to both interpersonal (e.g., assault, war terrorism and injury due to violence) and non-interpersonal (e.g., accidents, natural disasters, sudden death of a loved one, witnessing or hearing about death or death threats and life threatening diseases) trauma, characteristics typical of challenging environments, is associated with the development of PTSD (60–67,466,467). Furthermore, environments in which adolescents are more likely to experience adversities associated with these disorders are often in settings where quality mental health care is scarce (389).

Articles that focussed on adolescent mental health literacy, appropriate package of services, and provider competencies were identified and classified according to the process and output criteria in the WHO report found in Annex 3 (359). Articles were included if adolescents had used or were currently using mental health services, or were exposed to interventions or strategies within established mental



health services. Mental health services were defined as health services delivered at the primary, secondary or higher health facility level that offered prevention and treatment for anxiety, depression or PTSD, as well as any community-based initiatives originating from these health service levels. Articles about healthcare providers delivering mental health services to adolescents were also included. No exclusions were made by country. In cases where studies included individuals aged 18-24 years or 0-10 years, inclusion criteria were met as long as 10-19 year olds were the primary population of the study, meaning >50% of the study population and the median being within the age range of interest. Quantitative and mixed method studies were included, following the methodology of prior similar systematic reviews (345,468).

While mental health services can be delivered through school-based health services, the search was restricted to more generic and specialised health care facilities. Transition services for adolescents to adult services were also excluded as the focus was strictly on 10-19 year olds, adhering to the WHO's definition of adolescence (6). Clinical interventions that focussed solely on improving health outcomes were also excluded if they did not detail how quality measures were used. Mental health conditions linked to a comorbid physical health condition or learning disability were also excluded, given the more complex ways in which depression and anxiety can present in these groups, and the extent to which PTSD can reflect comorbid physical conditions in particular. Schizophrenia spectrum disorders, bipolar disorders or adolescent precursors of these two severe groups of mental health conditions were excluded, as the median age of onset is older than the 10-19 year old age range and these disorders are less common than anxiety, depression and PTSD. Studies that focussed on "at-risk mental states" were excluded, as evidence indicates that current risk identification approaches are limited within mental health services

(346). The study's primary interest was public health services, which led to excluding private healthcare services. Family therapy was also excluded as the focus was on services that more directly targeted adolescents (273). Given the launch of the Mental health Gap Action Programme (mhGAP) guidelines by the WHO in 2008 (373) which highlights the large treatment gap globally, studies prior to 2008 were excluded (383). No language restrictions were applied.

### 3.2.2. Search Strategy

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology was used to select the articles (Annex 4) (469). Peer-reviewed literature was searched through the following databases: PubMed, PsycINFO, MEDLINE, EMBASE, and LILACS from 1 January 2008 to 31 December 2020. Articles were also found by screening references in selected scientific articles that matched eligibility for inclusion. The search strategy is provided in Table 3.

Table 3. Search strategy of electronic databases

<b>Evaluation terms</b>	<b>Quality terms</b>	<b>Population</b>	<b>Setting</b>
Evaluation	Quality	Adolescent	Mental health service
Assessment	Health literacy	Youth	Primary mental health service
	Appropriate package of services	Teen	Mental health counselling
	Provider competencies	Young People	General Practitioner (GP) service

For example, the following search strategies were input into PubMed: (evaluat\* OR assess\*) AND quality AND (adolescent\* OR youth OR teen\* OR young people) AND mental health service\*; (evaluat\* or assess\*) AND quality AND (adolescent\* OR

youth OR teen\* OR young people) AND (mental health service\* OR primary mental health care service\* OR mental health counselling or GP service\*); (evaluat\* or assess\*) AND health literacy AND (adolescent\* OR youth OR teen\* OR young people) AND (mental health service\* OR primary mental health care service\* OR mental health counselling or GP service\*); (evaluat\* or assess\*) AND appropriate package of services AND (adolescent\* OR youth OR teen\* OR young people) AND (mental health service\* OR primary mental health care service\* OR mental health counselling or GP service\*); (evaluat\* or assess\*) AND provider\* competenc\* AND (adolescent\* OR youth OR teen\* OR young people) AND (mental health service\* OR primary mental health care service\* OR mental health counselling or GP service\*).

### 3.2.3. Data Collection and Extraction

Titles and abstracts were exported to Endnote (470) and scanned for relevance. Articles were removed if they did not meet inclusion criteria or were duplicates. The full text of included articles was obtained and studies were classified in relation to: (i) mental health literacy; (ii) appropriate package of services; or (iii) provider competencies. Articles were screened by myself, along with a colleague, to ensure that the articles met the inclusion criteria for the review.

### 3.2.4. Data Synthesis and Quality Assessment

A narrative synthesis of the included studies was undertaken as the lack of homogeneity precluded a quantitative synthesis of findings. The methodological quality of the studies was assessed using the National Institutes for Health (NIH) Study Quality Assessment Tools (471). Studies were assessed for sources of bias (e.g., patient selection, performance, attrition, and detection), confounding, study power, and strength of causality in the association between interventions and outcomes (471).

The studies were divided in half (50/50) with the second reviewer, rating each study independently. We then checked each other's coding for agreement. Disagreements were resolved through discussion with a third reviewer. Based on the ratings of each component, each study received an overall rating of good, fair, poor. Extracted data were entered into a table of study characteristics, including the quality assessment ratings for each study (Table 4 in **Chapter 4** and additional information found in Annex 5).

### 3.3. Social Support, Exposure to Violence and Internalising Symptoms

To identify adolescent mental health needs, specifically related to exposure to violence and social support, a secondary data analysis was conducted in **Chapter 5** using data from the São Paulo Project for the Social Development of Children and Adolescents (SP-PROSO) project. Sources of social support and gender were analysed as moderators between the association of exposure to different types of violence and internalising symptoms among adolescent students across schools in São Paulo city.

On my trip to São Paulo city between May and August of 2020, I was supposed to collect primary data through a school-based survey of secondary students in Campo Limpo, São Paulo city. However, due to delays with ethics procedures in Brazil, I could not accomplish this.

While I was in São Paulo city, I was a Visiting Academic with the Preventive Medicine team at University of São Paulo, led by Professor Maria Fernanda Peres (an advisor on my Advisory Committee). Professor Peres invited me to analyse the SP-PROSO data.

SP-PROSO is part of the study “Risk and protective factors associated with violent behaviour among adolescents in the city of São Paulo: the São Paulo Project for the Social Development of Children and Adolescents”, funded by the British Academy. The aim of the study was to investigate the prevalence of violence (perpetration and victimisation) and risk and protective factors among adolescents. The questionnaire was based on the instrument used in the sixth wave of the longitudinal Zurich Project on Social Development of Children (472) and the Montevideo Project for the Social Development of Children and Adolescents (473). The study used the same methodology as the Zurich and Montevideo sites to determine the prevalence of violence and explore associations with social and individual risk and protective factors among secondary students across São Paulo city.

It was also used as a comparison across the three sites to build a comprehensive understanding of violence and associated risk and protective factors among adolescents in three different cities (79).

Being able to conduct a secondary data analysis provided me flexibility, and it was cost-effective (474). As I plan to continue to conduct research on adolescent mental health in São Paulo city and across Brazil and Latin America and the Caribbean in my future career, the information and results generated from this analysis can be used to design subsequent primary data collection studies.

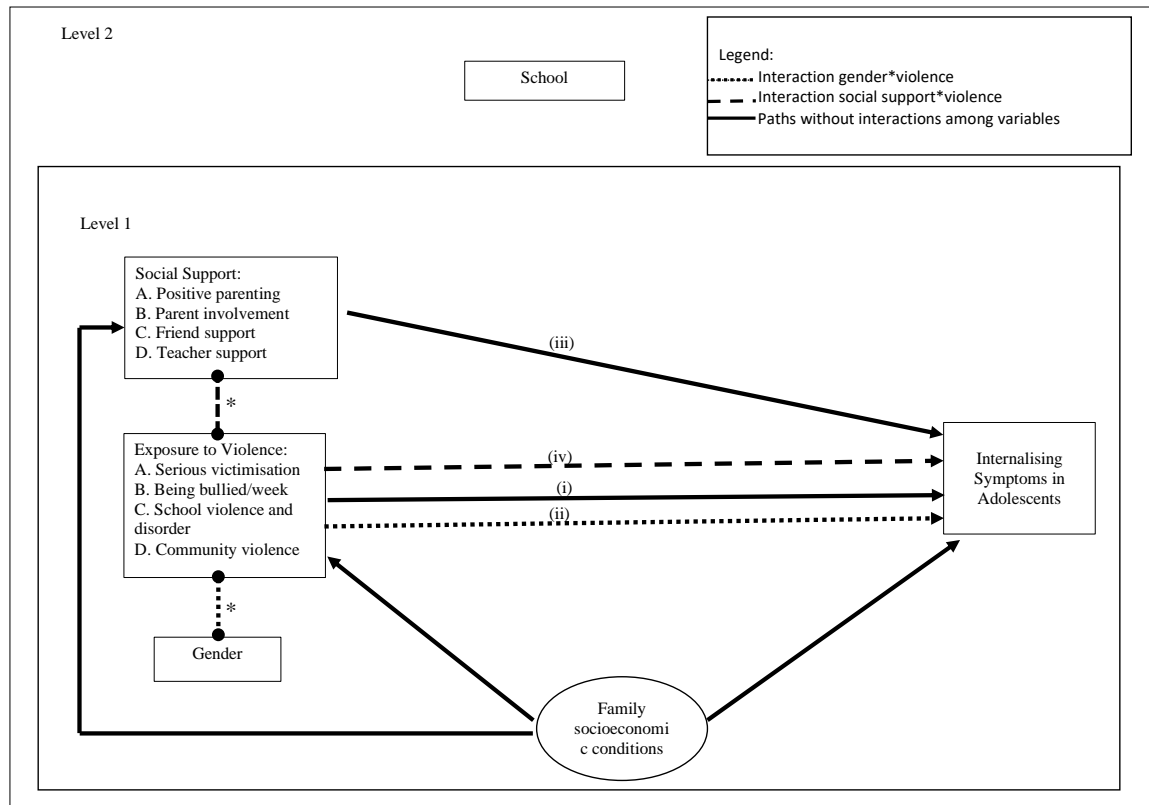
As it relates to the overall aim of the doctoral thesis, I investigated adolescent mental health needs in São Paulo city, specifically exposure to different types of violence, social support and supportive environments with adolescent mental health conditions.

As it relates to my PhD, I believe conducting a secondary data analysis using hierarchical data and linear mixed effects (LME) models was important for my learning objectives and skills, as it taught me how to use and analyse clustered data. As my future career interests lie in health services, there are multiple levels within the health system and knowing how to use data to analyse these different levels will be helpful.

### 3.3.1. Materials and methods

A model was constructed, suggesting the direct effect of exposure to community violence, moderated by gender and social support, on internalising symptoms, adjusting for family SES (Figure 4).

Figure 4. Model of exposure to violence, social support, internalising symptoms, and covariates.



A secondary data analysis was conducted of SP-PROSO, a cross-sectional school-based study in São Paulo city, Brazil, conducted in 2017 (79). A representative sample of adolescents attending their 9th year of education were randomly selected, using stratified sampling with three strata of schools: public schools funded by the State of São Paulo, public schools funded by the city of São Paulo and private schools. The number of classes in each stratum was determined based on the number of adolescents enrolled by class and school in their 9th year from the 2015 school census (475). 156 classes from different schools were selected. Of these, 128 classes were selected for initial data collection. The remaining classes were to be used as a reserve to fulfil sample size requirements if the desired sample size was not reached. All of

the schools selected for reserve were included due to a higher number of student absences on the day of data collection.

A total of 119 schools agreed to participate in the survey. Eligible adolescents were those present in the classroom on the day of data collection, whose parents did not proscribe their participation, and who did not appear seriously impaired in understanding the questions or answering anonymously, as assessed by teachers. The study sample consisted of 2,816 students; of which, 96 refused to participate and 18 were excluded due to failure to complete the questionnaire. This yielded a dataset of 2,702 adolescents aged 12.9 to 18.9 years.

Details on the questionnaire have been published elsewhere (79). Instrument translation and pre-testing were performed to maintain comparability and ensure the psychometric characteristics of the scales were not compromised (476). The instruments were piloted among 116 students from public and private schools. Reliability and confirmatory factor analysis (CFA) for all of the scales was conducted, and good fit was found for unidimensional solutions, as expected.

### 3.3.2. Procedure

A printed copy of the questionnaire was given to adolescents for self-completion during classroom time. Trained researchers were present in the class for assistance and support. The questionnaires were anonymous for students and schools, with single identifiers of sequential numbers for each school and student. The questionnaires were reviewed upon completion to detect inconsistencies and missing values. If problems were detected, the researchers asked the student to complete the section again. A total of 2,680 adolescents answered more than 80% of the questionnaire (94.1% of the sample) and were included in the data analysis.



The study was approved by the University of São Paulo's Committee for Ethics in Research and Brazil's National Research Ethics Committee. Participation was voluntary and adolescents were provided with informed consent. A detailed description of the study's protocol has been published elsewhere (79).

### 3.3.2.1. Measures

#### Level 1-variables

Internalising symptoms were measured using an adapted 9-item sub-scale from the Social Behaviour Questionnaire (SBQ) (477), the internalising problem behaviour subscale. The scale measures mainly depressive and anxiety symptoms within the month prior to the survey, with one item on self-harm (internal consistency of internalising symptoms was Cronbach's  $\alpha$ : 0.84) (478). Previous studies in Switzerland have evaluated the validity of the SBQ and results support the reliability, criterion validity, factorial validity and developmental invariance of the SBQ (478). Participants responded using a five-point likelihood scale from "never" to "very often". Answers to the questions were considered together, composing a summed, single measure. Internalising symptoms were analysed as a continuous variable, as this captured the full range of internalising symptom levels while potentially detecting associations with variables in the models (478).

Social support was measured using:

1. A 14-item instrument adapted from the Alabama Parenting Questionnaire (479) was used to measure the following dimensions of parent support: positive parent style (internal consistency was Cronbach's  $\alpha$ : 0.66) and parent involvement (Cronbach's  $\alpha$ : 0.74) (480). Positive parenting included 3-items. Positive parenting

was characterised by being recognised by parents when doing something well; being rewarded for doing something well; and being complimented if doing something well at school, in a sport or leisure activity. Parent involvement included 4-items. Parental involvement was characterised as having fun/playing with parents; being comforted by a parent when feeling sad; the parents are interested in things they do; and being able to talk to the parents when there is a problem. Participants answered each question using a 4-point likelihood scale from “never” to “often/always”. Two scores were created for positive parenting and parent involvement by averaging the items.

2. Friend support was measured using three questions developed by the Zurich project team, assessing the adolescent’s friendships within the previous year of the survey. Friend support was characterised by having good friends, having trust in friends, and getting along with friends. Participants answered the questions on a 4-point Likert scale from “totally disagree” to “totally agree”. A score for friend support was created by averaging the items (480).
3. Relationship to the teacher was measured using 3-items adapted by the Zurich project team with some items from the German Kriminologisches Forschungsinstitut Niedersachsen comparative studies on youth violence. Teacher support was characterised by being treated fairly by the teacher, getting along with the teacher, and being helped by the teacher when needed. Respondents answered the questions using a 4-point Likert scale from “totally disagree” to “totally agree”. A score for teacher support was created by averaging the items (480).

Violence Exposures were measured using:

1. The Bullying Victim Index is a 5-item scale initially developed by Olweus (481) and adapted by the project team using Françoise Alsaker's (482) definition of bully victimisation. The instrument measures the following items: being purposely ignored or excluded; laughed at, mocked or insulted. These items were selected to cover the range of bullying experiences that are considered important forms of victimisation. The reliability and factorial validity of the index was evaluated in a previous study (483). Although Solberg and Olweus (481) recommend a lower cut-off point of "2 or 3 times a month", a stringent lower bound cut-off point of "once per week" was used to analyse more frequent experiences of bully-victimisation. Respondents answered the questions using a 6-point likelihood scale from "never" to "almost every day". A binary score of the maximum value of each item was computed of "yes, at least once per week" and "no".
2. Serious victimisation was composed of 4-items, adapted by the project team on the basis of the Kriminologisches Forschungsinstitut Niedersachsen study (484). The questions measure the prevalence of serious victimisation of adolescents within the previous 12-months of the survey. This included, victimisation of violence by robbery, assault with a weapon or object that led to injury. A binary measure of serious victimisation was created (no victimisation/ victimisation).
3. Exposure to school violence and disorder was composed of 12-items and was created by the São Paulo project team (79). The questions measured the prevalence of witnessing or hearing about school violence, or school disorder, within the previous 12-months of the survey. Respondents answered the questions using a 4-point likelihood scale from "never" to "often (5+ times)". A measure was computed as the sum of each item to make an aggregate result.

4. Exposure to community violence was composed of 14-items, adapted from “Children’s Exposure to Community Violence” (485). The original scale had 10 items, however four items were added to explore types of violence common to the Brazilian reality, including witnessing or hearing about someone being murdered; carrying a weapon; someone that was bribed by police within the 12 months of the survey. Respondents answered the questions using a 4-point likelihood scale from “never” to “often (5+ times)”. A measure was computed as the sum of each item to make an aggregate result.

Covariates. Gender (male/female) and family socioeconomic conditions (low, medium, high) were included. Relative family socioeconomic conditions were measured using the socioeconomic score from the Brazilian Institute of Geography and Statistics, used in the Brazilian National Surveys of School Health (486). This score is composed of items on maternal educational level, family assets (e.g. TV, computer, vehicle) and access to services (e.g. telephone, paid domestic workers). Each item was weighted by the inverse of the prevalence in the sample. A score was computed from the sum of those weights for each adolescent, and the resulting variable was divided in tertiles (480).

Level 2-variable. Schools were identified by a number between 1 and 119.

### 3.3.2.2. Statistical methods

As the primary sampling unit for the study was the school, the sample was weighted at both levels, adjusting for the clustered survey design and accounting for the varying number of students per school (79). Cronbach’s  $\alpha$  was used to assess internal consistency of the scales, and goodness-of-fit was assessed for factor

analysis models using factor extraction and uniqueness values. Factorial and construct validity were measured using single-factor CFA models for all scales. Descriptive summaries, including Pearson's correlation coefficients were calculated for all study variables. Pearson's correlation coefficients for the social support scores were also calculated. Following Rabe-Hesketh and colleagues (2012) (488), the random effects variance was tested, or whether each type of violence exposure score, social support score and internalising score varied between schools, using a likelihood-ratio (LR) test. Multilevel modelling was also tested to determine if it was needed by assessing the LR of the nested and final models. To assess the variance between schools, the intraclass correlation coefficient (ICC) was estimated for the model with internalising symptoms only and the final models. Wald's chi-squared tests with a Bonferroni-type adjustment were used, following the approach from Korn and Graubard (489) to determine the significance of each model's variance components. Note that these adjustments refer only to the significance tests of the variance components in the models, not to possible multiple comparisons which could be derived by the contrasts in the models' fixed effects terms. To assess the degree to which each type of social support score differs from each other, the discriminant validity was analysed by investigating the correlations between items and scores or rest-scores as recommended by Perrot and colleagues (2018) (490).

To test the stress-buffering model, two-level linear mixed effects (LME) models were fitted across schools. Linear mixed models are an extension of linear regression and contain both fixed and random effects. They are useful for investigating clustered data, or multilevel correlations and associations, as was the case with the SP-PROSO data, analysing students within and between schools (491). Fixed effects denote the effects of the regression coefficients of interest, while random effects describe the

cluster within which the regression coefficients occur. LME models allow for the inclusion of random effects, in addition to those associated with the overall error term. A random-intercept LME model was used, which means that students within the same school can be correlated as a result of a shared random intercept, the school level (488). The notation used to build the random-intercept LME model was the following (488):

$$y_{ij} = \beta_0 + \beta_{1ij} + \beta_{2ij} + \beta_{3ij} + \beta_{4ij} + \beta_{5ij} + \beta_{6ij} + u_j + \epsilon_{ij}$$

Where  $y$  is internalising symptoms,  $i$  = student and  $j$  = school.  $\beta_1$  = type of exposure to violence (serious victimisation, being bullied, school violence, community violence);  $\beta_2$  = source of social support (positive parenting, parental involvement, friend support or teacher support);  $\beta_3$  = interaction term between type of exposure to violence and gender;  $\beta_4$  = interaction term between type of exposure to violence and source of social support (i.e., serious victimisation\*positive parenting);  $\beta_5$  = gender (male/female);  $\beta_6$  = family socioeconomic conditions;  $u_j$  = the random effect at the school level; and  $\epsilon_{ij}$  = overall error term.

The fixed portion of the model is

$$y_{ij} = \beta_0 + \beta_{1ij} + \beta_{2ij} + \beta_{3ij} + \beta_{4ij} + \beta_{5ij} + \beta_{6ij}$$

and provides one regression line presenting the adolescent student population average. Meanwhile the random effect  $u_j$  shifts this regression line up or down according to each school.

The first level of the model assessed: (i) the effect of each type of violence exposure on internalising symptoms; (ii) the interactive effect of each type of violence

exposure and gender on internalising symptoms (i.e.,  $\times$  gender(male)); (iii) the effect of perceived social support on internalising symptoms; and (iv) the interactive effect between each type of violence exposure and perceived social support on internalising symptoms (e.g.,  $\times$  positive parenting). Variation within- and between- schools (second level) was assessed, using maximum likelihood estimation and robust standard errors (488). Random effects terms were included in the models' intercepts. Post-hoc simple effect and simple contrasts analyses were conducted to determine the difference in internalising symptoms between girls and boys exposed to violence. Model selection was performed using the Bayesian Information Criterion (BIC). Smaller BICs indicated increased model fit penalised by the model's complexity. All of the four sources of social support together were analysed in each LME model to determine if there was a difference in their association with internalising symptoms (Annex 9). Family SES was controlled for in all models. Stata version 15.1 was used (492).

### 3.4. Quality in the Provision of Adolescent Mental Health Services

To investigate mental health actions related to quality in adolescent mental health services, **Chapter 6** presents an analysis of primary data collected through semi-structured interviews with health care provider across 5 BHU and 2 PCCca in low-resource and violent settings in São Paulo city.

I was supposed to travel to São Paulo city to conduct these interviews, however, the COVID-19 pandemic rendered this impossible. To overcome this barrier, I trained a local research team. They conducted the interviews remotely via Zoom, Skype, or Zoom in São Paulo city. Conducting in-person interviews was impossible. I developed the semi-structured topic guides and trained a local research team on the semi structured topic guide and how to conduct the interviews.

Semi-structured interviews are useful for comprehensively exploring health care providers' perception of the delivery of adolescent mental health services within challenging contexts. The qualitative data provided an in-depth understanding of health care providers' day-to-day experiences and the challenging contexts within which they work. It also explored their perceptions and explanation of the context within which the adolescent lives. It provided a greater understanding of the why and how of adolescent mental health service delivery (462).

As this relates to the overall aim of my thesis, I was interested in investigating how mental health services and actions respond to adolescents mental health needs.

As it relates to my PhD, conducting qualitative research provided me with a skill set valuable in terms of developing semi-structured interview topic guides, training the field research team, and learning how to analyse the data. As I plan to continue conducting research on health services, this skill set will be useful for my career to understand the complexities of health services.



### 3.4.1. Participants

Health care providers at five BHU and two PCCca were eligible to participate in the study. Participants from the BHU were included as this is the preferred gateway to the public health system and the Brazilian MOH has recommended this be the entry point to the mental health system. Participants from the PCCca were included as these are specialised mental health services, designed to work in partnership with the BHU (493).

Participants were purposively sampled, identified through a register from a private health care management company hired by the Brazilian UHS to provide public health services. Participants were contacted individually by telephone or via email. The study was based on semi-structured interviews (lasting about one hour) and included 45 participants, comprised of psychiatrists (n=4), psychologists (n=4), general practitioners (n=17), nurses (n=11), occupational therapists (n=4), social workers (n=4) and one neuropaediatrician (n=1). All of the psychiatrists and psychologists provided on the register at both the BHU and PCCca were interviewed. All of the FHSN support team at the BHU level, including social workers and occupational therapists, were interviewed. The rationale for interviewing these health care providers was because they were most likely to provide mental health services to adolescents at the primary level. Within FHS teams, we stopped recruiting new participants once saturation was reached. We did not interview CHA.

The study was commissioned under the British Medical Research Council (MRC) grant “Community Violence and Adolescent Mental Health”, with the protocol and semi-structured interview topic guide reviewed and approved by University College London’s Ethics Committee, the University of São Paulo’s Committee for Ethics in Research and Brazil’s National Research Ethics Committee (Annex 1).

### 3.4.2. Data Collection

Semi-structured interviews were conducted in Portuguese between June and October 2020 with health care providers located in seven distinct neighbourhoods of São Paulo city, most of which were located in the violent neighbourhoods of the south west zone of the city. Description and explanation as to why these neighbourhoods in the south west zone of São Paulo city were chosen are explained in **Chapter 2**, Section 2.1.1.

Due to the Covid-19 pandemic, all of the interviews were conducted remotely through the use of Zoom, Skype or WhatsApp. The objectives of the study were explained to each participant. Participation was voluntary and health care providers gave informed consent. Participants who agreed to participate were asked to digitally sign their names and return the consent form via email to the interviewer. Prior to the start of the interview, they also confirmed that they had read the consent form and provided verbal assent to participate. They had the right to discontinue the interview at any time. The interview was facilitated by a local researcher trained and experienced in conducting qualitative methods. Each session was video- and audio-recorded in Portuguese; participant names were not recorded or transcribed, with single identifiers of sequential numbers for each participant used. Any identifiable references were deleted. Each participant was encouraged to speak and express their own views. The participant information sheet and consent form can be found in Annex 6.

A semi-structured topic guide with questions to ascertain various aspects to quality of adolescent mental health services was developed. This included definitions of quality in adolescent mental health care; challenges to quality, particularly in a

resource-limited context; and perceived barriers and enablers to the provision of mental health services to adolescents. For example, semi-structured interview questions included: (1) How do you define quality in adolescent mental health services? (2) What do you think about quality in adolescent mental health services when adolescents live in challenging and difficult environments? (3) What are the barriers and facilitators to working with adolescents in mental health care? The topic guides in English are found in Annex 7.

### 3.4.3. Analysis

All 45 interviews were transcribed verbatim in Portuguese. Scripts were familiarised and iterative coding scheme developed using NVivo 12 qualitative data analysis software (494). The methodological framework for thematic analysis as described by Braun and Clarke (495) was followed. Thematic content analysis was used in order to rigorously and inductively investigate health care providers perspectives and experiences, investigating similarities and differences in responses. Furthermore, it was a useful approach to explore perspectives in the delivery of adolescent mental health services. It is also a flexible method to interpret qualitative data in the identification of themes and ideas and for developing theoretical models and building real-world solutions (495).

The process involved the identification of common words and phrases which were coded and later grouped into subthemes and themes. Following identification of key themes, the transcripts were coded according to the themes. As the data were reviewed, new themes and subthemes emerged and were adapted in an iterative process. Where appropriate, selected verbatim anonymised quotes from the participants were used to illustrate the themes identified in the study. The coding frame

can be found in Annex 8. I translated the quotes from Portuguese to English; these quotes were then revised by Dr Ligia Kiss, a native Portuguese speaker.

The videos, audios and transcriptions were shared through Drop Box using a secure user name and password to access these files. These files were secured with an additional user name and password to open the files. All of the work was conducted through the secure UCL Remote Desktop platform.

### 3.5. My Contribution

Given that the PhD took place within the larger MRC project “Community Violence and Adolescent Mental Health”, I would like to acknowledge my role in the project and the contributions of different researchers. My primary and secondary advisors are based at the UCL Institute for Global Health. They were both co-Principal Investigators of the MRC project. Professor Ligia Kiss was my primary advisor. She provided regular mentoring, supervision on all research aspects and guided doctoral training. My secondary advisor was Dr Delan Devakumar. He provided regular mentoring, supervision and guided doctoral training. He also chaired the panel for my upgrade from MPhil to PhD in October 2018.

I also had an Advisory Committee composed of Professor Susan Sawyer, Centre for Adolescent Health, Royal Children’s Hospital, Murdoch Children’s Research Institute, and Department of Paediatrics, the University of Melbourne; Professor Maria Fernanda Peres, Preventive Medicine Department, University of São Paulo, São Paulo city, Brazil; Professor Mario Borja Cortina, Population, Policy & Practice Department, Great Ormond Street Institute for Child Health; Dr Jenevieve Mannell, UCL Institute for Global Health; and Dr Rafael Cortez, World Bank.

I conducted all analyses (quantitative and qualitative) in this PhD, interpreted the results and wrote the text for the thesis. To ensure security of the data and analyses, all data files (quantitative and qualitative) and Word documents were password protected and stored only on UCL’s Remote Desktop platform. Further information on each chapter is provided below:

- For Chapter 4 of this PhD, I developed the research questions and undertook the systematic review.

- For Chapter 5 of this PhD, the secondary data analysis was part of the SP-PROSO project and was developed with support from Professor Maria Fernanda Peres. I also received statistical guidance from Professor Mario Borja Cortina.
- For Chapter 6 of this PhD, I developed the research questions and designed the qualitative study to answer these questions. All qualitative data collection was conducted by the local research team employed by the MRC project. I trained, supervised and coordinated with the local research team on the data collection.

### 3.6. Ethics Approval

The MRC project (**Chapter 6**) was approved by UCL's Ethics Committee (2744/005), the Committee of Ethics and Research of the University of São Paulo Medical School (n. 3.844.132) and Brazil's National Research Ethics Committee (n. 3.562.927) (UK and Brazilian ethics approval can be found in Annex 1). Participation was voluntary. Health care providers gave informed consent electronically and verbal assent to participate at the start of the interview. Participants had the right to discontinue the interview at any time. Participant names and identification were not recorded or transcribed, with single identifiers of sequential numbers for each participant used. Any identifiable references were deleted, thus guaranteeing anonymity and confidentiality.

**Chapter 5** of this doctoral thesis was approved by the Committee of Ethics and Research of the University of São Paulo Medical School (n. 1.719.856) and Brazil's National Research Ethics Committee (n. 2.014.816). The SP-PROSO study was conducted in collaboration with the Education Departments of the State of São Paulo

and the Municipal city government. All schools voluntarily agreed to participate in the study (73). Participation was voluntary for students and they could discontinue the questionnaire at any time. Parents gave informed consent and the student provided verbal assent on the day the questionnaire was administered. The questionnaire was anonymous for the student and school, with single identifiers of sequential numbers for each school and student used, thus ensuring anonymity and confidentiality.

### 3.7. Reflexivity

As a non-native Brazilian and White woman from a high-income country, I understand that my own experiences and perspectives may have influenced the collection and interpretation of the research data collected for this doctoral thesis.

I majored in Psychology (B.A.) during my undergraduate studies at Concordia University in Montreal, Canada and hold a Master's in Public Health at the University of Michigan in Ann Arbor, US. Prior to starting my PhD, I was an Adolescent Health Specialist, conducting research on adolescent health (specifically adolescent sexual and reproductive health) interventions and policies at the World Bank and the Pan American Health Organization, Regional Office of the World Health Organization, working in resource-limited and challenging settings, predominantly in Latin America and the Caribbean.

For my doctoral research, I lived in São Paulo city between May and August of 2019 and was a Visiting Academic at the Preventive Medicine Department at the University of São Paulo. I learned Brazilian Portuguese and developed professional relationships with colleagues at the Preventive Medicine Department and the Albert Einstein Israelite Hospital. At this time, I visited three different Basic Health Unit (BHU) facilities and met with health care managers and providers to discuss adolescent

mental health services. This may have consciously and unconsciously influenced my data analysis and interpretation of findings. Through these professional relationships, I gained information and knowledge about adolescent mental health, the mental health services available to adolescents and the resource-limited and challenging contexts within which adolescents lived.

To ensure reflexivity, I aimed to evaluate and question my own assumptions and perspectives, based on my values and experiences; as opposed to making assumptions about knowing why and how health care providers engage in certain practices (496). To this end, I used Alexander and colleagues (2020) framework of reflexivity underlying action, critically reflecting on my assumptions generated from the interviews, the potential power dynamics as well as the interests served. At each step of the analysis, I questioned my interpretation of the results and how that could have been influenced by my assumptions, beliefs and values; and the power structures that could have been created or supported through my interpretation. I also reflected on prior evidence and how the analysis supported, or invalidated, previous literature (497).



## Chapter 4. ADOLESCENT MENTAL HEALTH SERVICES: SYSTEMATIC REVIEW OF QUALITY IN ADOLESCENT MENTAL HEALTH SERVICES

Sections of this chapter (text, figures and tables) have been published in: Quinlan-Davidson M, Roberts KJ, Devakumar D, et al Evaluating quality in adolescent mental health services: a systematic review *BMJ Open* 2021;11: e044929.

### 4.1.1. Research Objective and Questions

The objective of this chapter is to systematically evaluate the quality of adolescent mental health service provision globally, according to the WHO Global Standards of adolescent mental health literacy, an appropriate package of services and provider competencies (359).

As such, the research question addressed is: What is the global evidence base on quality in adolescent mental health services, specifically adolescent mental health literacy, appropriate package of services and provider competencies?

The review focusses on quantitative and mixed-method evaluations of mental health services for 10-to-19 year olds adolescents with suspected or diagnosed cases of depression, anxiety, and PTSD.

### 4.2. Results

Figure 5 shows the results of the search and selection strategy. Of 20,104 references identified, 456 full-text articles met inclusion criteria from which a total of 20 articles were included in the study. Table 4 describes the characteristics of the studies included.

Figure 5. Flow diagram of studies

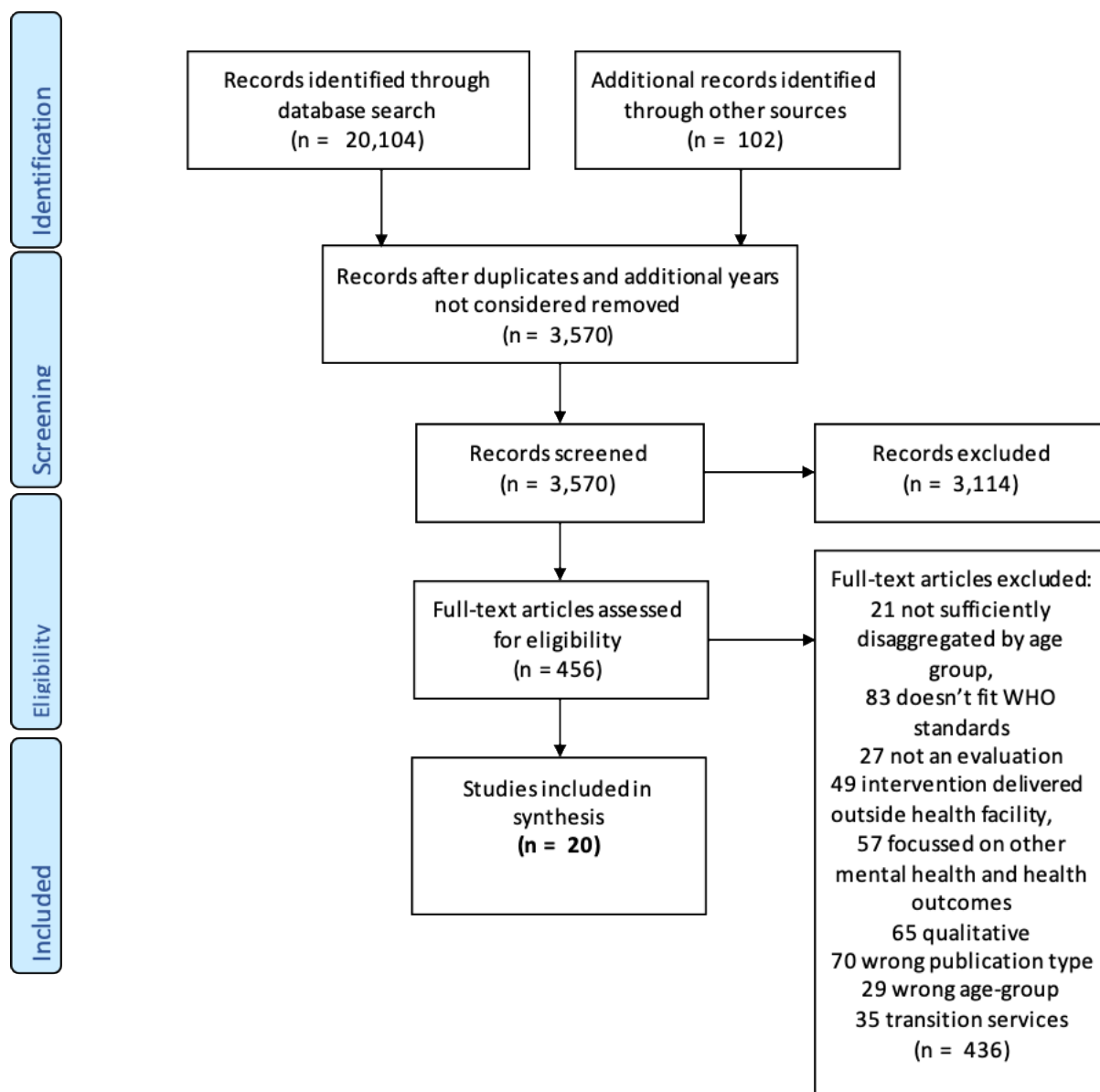


Table 4. Characteristics of included studies

Author and country	Type of mental health service	Study/Evaluation design	Target population	Element(s) of quality addressed	Results	Quality assessment
Davidson et al (2019), USA (498)	Secondary level services	Pilot randomized controlled trial (RCT)	n=18 providers  n=32 children and adolescents (5-16 years, mean=11.5 years)	Appropriate package of services; Provider competency	Strong alliance between adolescents and providers, d=0.11; Assisted in skills-based learning, d=0.47; Adolescent satisfaction with treatment (Child/Adolescent Satisfaction Questionnaire), d=0.53	Fair
Jager et al (2017), The Netherlands (499)	Secondary level services	Longitudinal prospective cohort	n=315 12-18 year olds	Appropriate package of services; Provider competencies	Smaller reduction of psychosocial problems when adolescents valued communication but didn't experience it (total difficulties score at T1 an average of 15.6 and at T2 13.9)	Fair
Ougrin et al (2018), UK (500)	Tertiary level services	RCT	n=53 in intervention arm (0-17 years; mean=16 years); n=53 in control arm (0-17 years; mean=16 years)	Appropriate package of services	Lower occupied bed days between intervention and control arm (median 34 days, p=0.04); Intervention arm more effective and financially reasonable compared to control arm	Good
Dion et al (2010), Canada (501)	Emergency department (ED) services	Cross-sectional surveyed	n=87 medical staff (nurses, residents, and physicians)	Provider competency	ED staff reported greater confidence in managing and referring patients based on years of employment (r=0.35, p<0.01); Physicians (83%) were more confident than nurses (8%)	Fair

					or residents (8%) (p=0.05); The majority of ED staff (67% of nurses, 64% of residents, and 83% of physicians) were satisfied with the program	
Spenser et al (2009), Canada (502)	Tertiary level services	Cohort study	n=27 community paediatricians; n=16 outpatient mental health clinicians	Provider competency	5 mental health clinicians stated that having paediatricians on mental health team was positive; Over 20% of clinical activity for almost 12 paediatricians deals with mental health issues; 7 mental health clinicians stated that the educational sessions led to increased knowledge about mental health of children and adolescents	Poor
Ayton et al (2013), UK (503)	Secondary level services	Mixed methods including survey with consultants and review of case notes.	n=23 Child and Adolescent Mental Health Service (CAMHS) consultants surveyed; 33 case notes reviewed	Appropriate package of services; Provider competencies	Care Programme Approach (CPA) care plans audited assessed 96.4% of mental health and needs and 71.4% of family needs; other needs (housing: 33.9%, sexual health: 7.1%, and sign of relapse or crisis: 28.6%) minimally assessed in CPA plans	Fair
Aupont et al (2013), USA (504)	Primary level services	Prospective cohort with adolescent service users	n=329 (m=12.3 years)	Appropriate package of services	The relative risks of staying in mental healthcare (instead of going back to paediatrics) was 7.5 for those with depression and 5.1 for those with anxiety disorders; The return rates to the referring paediatrician were 27.9% and 5.9% for adolescents with anxiety and major depressive disorders	Fair
Simmons et al (2016),	Enhanced primary	Prospective cohort study	n=57 12-25 year olds used the	Mental health literacy; Provider competencies	97% reported increased confidence in deciding about their own healthcare after using the decision aid (p=0.022);	Fair

Australia (505)	level services		decision aid and completed the post-decision assessment; n=48 completed the follow-up assessment		on shared decision making adolescents scored average of 37.4 (range 29-44); indicating high level of perceived involvement in the treatment process	
Irvine (2020), Ireland (506)	Community, primary, secondary and tertiary level services	Cross-sectional online survey	n=604 11-21 year olds	Mental health literacy, appropriate package of services, provider competencies	73% of adolescents stated that they had been spoken to in a way that they could understand; 42% and 40% stated that they were given a choice in treatment/support and felt involved in their treatment decisions; GP and ED services scored poorly across all quality indicators; community services scored the highest	Fair
Jager et al (2014), the Netherlands (507)	Secondary level services	Longitudinal, prospective cohort study	n=211 12-18 year olds	Appropriate package of services; Provider competencies	Adolescents who valued patient centred communication but did not have their communications needs met were less likely to adhere to their treatment (OR: 2.8; CI: 1.1-6.8)	Fair
Stevens et al (2009), USA (508)	Tertiary level services	RCT	n=179 11-20 year olds	Appropriate package of services	No significant differences found between treatment and control arms	Good
Anderson et al (2012), Australia (509)	Secondary level services	RCT	n=73 12-18 year olds	Appropriate package of services	Adolescents in intervention (mean 5.77, SD 1.2) and control (mean 5.58, SD 1.34) reported strong working alliance; Adolescent working alliance was positively associated with compliance at 6 month follow-up (r=0.30, p<0.001)	Poor

Kapp et al (2017), Switzerland (510)	Secondary level services	Cross-sectional study	n=663 patients 10+years of age	Appropriate package of services	Patients who had time to formulate and ask questions had better alliance ( $p < 0.001$ ); Easy accessibility to CAMHS by phone had higher alliance scores ( $p = 0.037$ )	Fair
Cairns et al (2019), Australia (511)	Primary level services	Cohort	n=283 clinical charts of 12-25 year olds	Appropriate package of services; Provider competencies	Emotional management and well-being goals were most frequently recorded; None of the analysed goals met criteria for being specific, measurable, and timed; 57% were specific while 14% were measurable; none had a timeframe; Goal quality was not associated with service retention	Fair
Ringle et al (2019), USA (512)	Secondary level services	Medical record audit	n=727 medical records of 8-18 year olds	Provider competencies	46% of children and adolescents received care that was guideline concordant; Clients with worse functioning (OR = 0.985, $p < .001$ ), higher problem severity (OR = 1.02, $p = .015$ ), higher risk of harm to others (OR = 1.61, $p < .001$ ), more school problems (OR = 1.48, $p < .001$ ), and who had a diagnosis of depression (OR = 1.37, $p < .05$ ) or a conduct-related disorder (OR = 1.37, $p < .05$ ) at intake were more likely to receive less intensive services than those recommended by the guidelines.	Fair
Sattler et al (2019), USA (513)	Mix of primary and secondary level	Medical record audit	n=694 medical records 7-17 year olds	Appropriate package of services; Provider competencies	Patients received 1.48 evaluations on average for psychiatric symptoms; 45.7% of all facilities used self-report measures and 5.2% used diagnostic interview; 23.2% of psychologists documented the use of diagnostic	Fair

					interviews, compared to 2% and 0% of psychiatrists and primary care physicians ( $p<0.01$ ); 43% psychologists, 43.3% psychiatrists, and 39.3% of social workers more likely to document specific diagnoses compared to primary care (22.6%) ( $p<0.01$ )	
Sattler et al (2016), USA (514)	Primary and secondary level services	Medical record audit	n=801 7-17 year olds	Appropriate package of services; Provider competencies	5.3% of anxiety disorder speciality clinics used structured diagnostic interviews; 21% of all health facilities used rating scales (28.9% of speciality clinics, 19.6% of general mental health clinics, and 15% primary care); Evaluations in specialised clinics resulted in specific diagnosis ( $p<0.001$ ); rating scales were associated with specific diagnosis ( $p=0.04$ )	Fair
Higa-McMilan et al (2017), USA (515)	Secondary level services	Medical record audit	n=2,485 3-19 year olds	Appropriate package of services; Provider competencies	55-93% of cases use the following Practices Derived from the Evidence Base (PDEB) for adolescents: cognitive, psychoeducational, relaxation, modelling; 99.7% of youth had at least one PDEB over their treatment course	Fair
Rukundo et al (2020), Uganda (516)	Primary, secondary and tertiary level	Clinical record review	n= 50 providers	Appropriate package of services; Provider competencies	Since training: more children and adolescents had patient-centred assessments; decreased use of medication with more appropriate medication prescribed; increased use of psychological treatments; and non-CAMH professionals had greater diagnosis revisions and management of cases	Fair

Bardach et al (2020), USA (517)	Emergency department	Medical record review	n=22,844 children and adolescents 6-17 years of age (majority 12-17 years)	Appropriate package of services; provider competencies	62% and 82.3% of patients had follow-up within 7 days and 30 days, respectively; patients discharged from GPs and EDs were less likely to have follow-up compared to those discharged from psychiatric services; Follow-up within 7 or 30 days of discharge was associated with an increased risk of a subsequent hospitalization or ED visit for a mental health illness	Fair
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#### 4.2.1. Study Characteristics and Settings

The majority of studies were conducted in high-income countries, namely the US (8 studies) (499,504,508,512–515,517), Australia (3 studies) (505,509,511), United Kingdom (2 studies) (500,503), Canada (2 studies) (501,502), the Netherlands (2 studies) (499,507), Ireland (506), and Switzerland (1 study) (510). One study was conducted in Uganda (516). Most of the studies focussed on evaluating or assessing the provision of services that are appropriate for adolescents (15 studies) and enhancing provider competencies (15 studies), with a minority focussed on increasing adolescents' mental health literacy (2 studies).

The services ranged from emergency (501,517), to primary level (504–506,511,513,514,516,517); secondary level mental health services (498,499,503,506,507,509,510,512–517); and tertiary level services (500,502,506,508,516,517).

#### 4.2.2. Quality Assessment

The majority of the studies were assessed as 'fair' quality (n= 16, 80%); 2 (10%) studies were assessed as 'good' quality, and 2 (10%) were assessed as 'poor quality'. Studies rated as 'poor' mainly had lack of clarity about the methods and outcomes analysed, confounding and higher sources of bias. Ougrin and colleagues (2018) and Stevens and colleagues (2009) implemented studies that were rated as good quality (500,508). Both conducted randomised controlled-trials in tertiary level facilities. They also experienced low drop-out rates, high adherence to the interventions, and consistently used valid and reliable measures (500,508).

### 4.2.3. Conceptualising Quality

The majority of studies did not conceptualise quality (499–505,507–509,516). Where it was conceptualised, it was in reference to high quality care, defined as healthcare provider fidelity to evidence-based treatment models and adolescents' engagement in the treatment process (satisfaction and quality of engagement with therapists and adolescents) (498); as quality indicators in terms of information and access, facilities and services and quality of care (506); as quality indicators in child and adolescent mental health services, specifically around patient satisfaction and quality engagement between the therapist and adolescent (510); or follow-up after hospitalisation for a mental illness (517). Common themes within these studies were a focus on the processes of care and quality impacts (improved mental health and greater confidence of the health service and system) (370).

Other studies mentioned quality in relation to patient-centred communication or how providers adapt their communication style to meet the needs and preferences of their patients (507). Quality was also considered in relation to goal setting between the therapist and adolescent patient and whether these goals were specific, measurable, achievable, realistic/relevant, and timely (511). The use of evidence-based assessments, practices, and policies was another aspect of quality mentioned in some studies (512–514,516). Other aspects of quality were linked to communication. These studies included: coordination of care between an in-patient mental health unit and a community service (503); mental health care delivered through the emergency department (501); and collaboration between family physicians and psychiatrists (502). Jager and colleagues (2017) measured affective quality as a key component of patient-centred communication, however, this was not

defined (499). The common theme that emerged from these studies is that they focussed on foundations of quality care (370). Findings from the review are presented below by WHO quality standards (359).

#### 4.2.4. Quality Standards

##### 4.2.4.1. Adolescent Mental Health Literacy

Two studies reported outcomes relevant to adolescent mental health literacy. One focussed on an online decision aid for mental health services (505). 97% of adolescents reported increased confidence and awareness in deciding about their own healthcare and involvement in the treatment process when exposed to an online decision aid ( $p=0.022$ ) (505). Another evaluated adolescents' experience with mental health services; specifically, whether they were given useful information to understand their mental health needs and if they had a choice in their treatment and/or support (506). Emergency Departments (EDs) and General Practitioners (GPs) scored poorly on these measures (<50% of adolescents experiencing this) while more than 50% of adolescents reported that they had experienced this in community CAMHS and in-patient care (506). The quality of evidence from these studies was fair.

##### 4.2.4.2. Appropriate Package of Services

Fifteen of the 20 studies evaluated services that met the WHO standard for appropriate packages of services (359). Interventions that involved aspects of an appropriate package of mental health services were diverse and targeted the quality of engagement between the therapist and adolescent (498,506,509–511), patient-centred communication (498,507), mental health service use (504,508,516), linkages to mental health services (504), health facility culture and patient safety (503), clinician's assessment of diagnostic and treatment services (513,514), and intensive

community treatment (500). The quality of the evidence for the 15 studies was poor to good.

Five of the 15 studies (498,506,509–511) reported improvements in the quality of engagement between therapist and adolescent patient, including the interaction, collaboration, and bond (509). These included the use of a tablet-based application on trauma-focused cognitive behavioural therapy (TF-CBT) in the US (498), an online cognitive behaviour therapy intervention in Australia (509), an outpatient child and adolescent mental health clinic in Switzerland (510), and the use of goal setting in Australia (511). Davidson and colleagues (2018) evaluated a tablet-based application on TF-CBT, finding a small to medium effect size on developing therapeutic tasks ( $d=0.47$ ) and a small effect size on therapeutic bond ( $d=0.11$ ), with most adolescents satisfied with the intervention ( $d=0.53$ ) (498). Anderson and colleagues (2012) evaluated an online cognitive behaviour therapy intervention with minimal therapist contact, finding that greater therapeutic alliance led to greater adolescent adherence with treatment at 6 month follow-up ( $r=0.30$ ,  $p<0.001$ ). Results also found that adolescents in both the intervention and control arm reported strong therapeutic alliance (509). Irvine (2020) evaluated adolescents' experience at different types of health facilities; specifically, whether they felt involved in the decisions that were made about their treatment plan and if they found the support to be helpful (506); 16%, 30%, 36% and 42% of adolescents stated that they felt involved in decisions about their care from in-patient facilities, EDs, community CAMHS and GPs, respectively, and 34%, 39%, 44% and 45% felt the support they received was helpful from EDs, in-patient care, GPs and community CAMHS respectively (506).

Two of the 15 studies (499,507) focussed on patient-centred communication in the Netherlands, finding that adolescents who did not experience patient-centred

communication were less likely to adhere (OR: 2.8, CI: 1.1-6.8) and have confidence (OR: 4.5, CI: 1.8-11.6) in their course of treatment (507). They also were less likely to experience a significant reduction in their mental health problems, compared to those who experienced patient-centred communication (499).

One study evaluated mental health service use through a telephone support service (TSS) intervention in the US (508). The study found no difference in mental healthcare utilisation ( $p=0.65$ ) between adolescents in the intervention and those in usual care (508). Another study evaluated referrals between paediatric care to mental health services through the Targeted Child Psychiatric Service (TCPS) program in the US. The program enables access to specialised mental health services for adolescents with mental health conditions from paediatric primary care, ensuring long-term management in the most appropriate healthcare setting. Results showed that adolescents with depression and anxiety required continued access to specialised mental healthcare (504).

One study (503) evaluated health facility culture and patient safety with the Care Programme Approach (CPA), which ensures that children and adolescent patients are involved in all aspects of their mental health care in the UK. Patient safety was found to be an issue. In fact, unplanned discharge (i.e., self-discharge, tribunal discharge, or commissioning pressure to discharge) was the most common problem due to siloed rather than collaborative, decision-making. Other challenges were limited collaboration between early intervention, education, and CAMHS teams; and a lack of joint protocols on the CPA and discharge between organisations (503).

Two studies in the US focussed on the use of structured interviews, symptom rating scales, and Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) diagnostic criteria in primary, secondary, and tertiary level services (513,514). Results

showed that structured diagnostic interviews were more likely to be used by psychiatrists and psychologists compared to general physicians ( $p < 0.01$ ) (513).

One study examined whether a Supported Discharge Service (SDS), or intensive community treatment, would be more beneficial and cost-effective than usual care among adolescents (500). A significant difference in the overall number of bed-days from the SDS arm was found at 6 months (median 34 days,  $p = 0.04$ ) compared to usual care. The SDS was found to have at least 50% probability of being cost-effective in comparison to usual care and willingness to pay for outcome improvements (the incremental cost effectiveness ratio was -£991), or the cost per life year gained (500).

#### 4.2.4.3. Providers' Competencies

Fifteen studies included outcomes relevant to healthcare provider competency. They focussed on confidence in managing and referring adolescents with mental health issues (501), greater collaboration between paediatricians and mental health clinicians (502), use of evidence-based practices (512–515,517), use of a tablet to facilitate adolescent patient engagement in therapy (498), provision of information (498,505–507), and implementation of care models and plans (503,504,516). The quality of evidence for the fifteen included studies ranged from poor to fair.

In evaluating confidence of referring adolescents with mental health patients, Dion and colleagues (2010) found that training through a Crisis Intervention Program increased ED staff confidence in managing and triaging patients ( $r = 0.35$ ,  $p < 0.01$ ) in Canada (501). Another study evaluated collaboration between paediatricians and outpatient mental health clinicians in Canada. Results showed a positive effect on patient care with a paediatrician on the mental health team (502).

Five studies evaluated the use of evidence-based practices and guidelines in adolescent mental health services (512–515). Higa-McMillan and colleagues (2017) found that the most commonly used evidence-based practices for adolescents with anxiety disorders included cognitive, psychoeducational, relaxation, and modelling (515). In a US study, the authors found that patients were more likely to receive less intensive services if they had poorer functioning, greater problem severity, greater risk of harm to others, and greater school problems, with a diagnosis of depression or conduct disorder than guideline recommended (512). As part of the Children’s Core Set of quality measures, Bardach and colleagues (2020) evaluated the follow-up after hospitalisation for mental illness at 7 and 30 days for children and adolescents (aged 6-17 years old) in the US. Results showed that 62% and 82.3% of patients were followed-up within 7 and 30 days. Adolescent patients were more likely to be followed-up after discharge from psychiatric units and hospitals compared to those from general medical or surgical units (517).

A two-year child and adolescent mental health training programme for health care providers (psychiatric clinical officers, psychologists, psychiatric nurses, general nurses, occupational therapists, etc) was implemented in Uganda (516). Medical records were reviewed annually over six years, finding that a greater number of children and adolescents were receiving thorough patient-centred assessments; a reduction in medication prescription; an increase in the use of psychological treatments and greater management of cases by non-CAMHS professionals after the intervention (516).

Two studies in the Netherlands found that adolescents who did not experience patient-centred communication were less likely to understand (OR: 3.7, CI: 1.5-9.0) (499, 507) (OR: 3.1, 1.1-8.5) (507) their course of treatment. Similarly, through the use

of an online decision aid, 93% of participants were more likely to make a healthcare decision that was guideline concordant ( $p=0.004$ ) and consistent with their preferences (499).

### 4.3. Discussion

To the author's knowledge, this is the first review that has attempted to evaluate the quality of adolescent mental health services (359). A total of 20 studies were identified, overwhelmingly from high-income countries. Fifteen studies focussed on packages of services, 15 on healthcare provider competency and two on mental health literacy. There was limited evidence (505) of an intervention improving mental health, however, it cannot conclusively be stated this was effective.

Despite the large contribution of mental health conditions to the global burden of disease in adolescents and the need for quality mental healthcare services, most studies lacked a formal conceptualisation of quality and did not have a clear framework or definition of quality. There were a variety of instruments used to measure quality and its indicators. However, the conceptualisations of quality in mental health services, as well as the generalisability of our findings, are therefore limited. The findings also indicate a large service gap and suggests that there is a need to not only develop and standardise a definition of what constitutes quality adolescent mental healthcare, but also develop and standardise methods that measure quality in adolescent mental healthcare.

There are several challenges to providing quality care within adolescent mental health services, including stigmatising attitudes and behaviours about treatment seeking, service provision and utilisation (57,313,518,519), the lack of professional expertise (326,378,379), and the current disease-based model of medicine (18). Also,



quality in mental health services has received little attention in relationship to adolescents (370).

Stigma is a significant barrier to the availability and delivery of quality mental health services within communities (520). It has been posited that stigma occurs at the structural (organisation, resources, quality standards), interpersonal (the quality of engagement between the healthcare provider and adolescent, patient safety), and intraindividual levels (healthcare providers unwilling to assess adolescent mental health conditions, adolescents unwilling to seek mental healthcare services) (95,357). Perceived stigma is a failure in quality that prevents adolescents from seeking and continuing care for mental health conditions (57,314,357,518,519,521). It points to a need for mental health literacy among healthcare providers. Quality mental health services cannot be achieved without healthcare providers having a reasonable understanding of adolescent mental health. This needs to start with healthcare provider training and preservice education (521).

Apart from one study from Uganda (516), all of these studies were from high-income countries, illustrating an important gap in the literature within LMICs around quality of adolescent mental health services. This could reflect service and research gaps in all aspects of mental health in LMIC (273,340,522), as well as different ways in which mental health is conceptualised in LMICs at the national and local levels (18). It may also reflect the continued orientation in LMICs to more acute health conditions rather than in response to complex conditions that require long-term care, such as mental health conditions (18, 370). Patel et al (2019) argue that mental health conditions do not follow the typical disease-based model of medicine, and that a 'one size fits all' approach does not work (18). This is particularly the case for subsyndromal

or early onset mental health conditions which may not readily fit with diagnostically oriented services (519).

There have been efforts to overcome these challenges, as identified in table 5. While the majority of these studies focussed on generic healthcare for adolescents, their findings are equally relevant for adolescent mental health care.

Table 5. Frameworks to Address Quality in Adolescent Health Services

Reference	Framework	Components of Framework
Sawyer et al (2014) (523)	Conceptual framework for adolescent-friendly healthcare based on experience of care and evidence-informed care, including a set of 14 Indicators of quality healthcare for adolescents in hospitals	Experience of care:
		Felt welcome in hospital
		Age appropriate environment
		Respected by clinicians
		Trust in clinicians
		Understanding of health information
		Involvement in decisions about care or treatment
		Comfort asking questions about health and wellbeing
		Evidence informed care:
		Psychosocial assessment
		Confidentiality discussions
		Time alone in consultations
		Self-management
		Transfer to adult services
Supported to continue education		
Connection to external supports		
Ambresin et al (2013) (382)	Domains for youth-friendly care to assess how well services are engaging young people	Accessibility of healthcare
		Staff attitude
		Communication
		Medical competency
		Guideline-driven care
		Age-appropriate environment
		Involvement in healthcare
Health outcomes		
UK NHS (2007) (524)	'You're Welcome' quality criteria to ensure that health services (primary, community, specialist and acute) are young people-friendly	Accessibility
		Publicity
		Confidentiality and consent
		The environment
		Staff training, skills, attitudes and values
		Joined-up working
		Monitoring and evaluation and involvement of young people
		Health issues for adolescents
		Sexual and reproductive health service
Child and adolescent mental health services		
Sayal et al (2012)(388)	10 quality standards for children and adolescents in primary mental healthcare	Confidentiality
		Knowledge
		Awareness
		Communication
		Continuity of care
Access and referral		

Arguably, a good starting point for measuring quality in adolescent mental healthcare services would be a more scalable combination of the youth-friendly guideline driven care developed by Ambresin and colleagues (2013) (382) and the quality standards developed by Sayal and colleagues (2012) (388). The same investments that promote quality in other age groups will be similarly valuable for adolescents, but greater specificity and focus is required around the health service aspects of engagement, communication and confidentiality. The studies identified in our review examined aspects of engagement and communication, but interestingly, did not explore confidentiality.

The findings from the review should be appreciated in light of the broader challenges to quality in adolescent mental health services as described above. Regarding adolescent mental health literacy, the study found that a youth decision aid helped young people make evidence-informed decisions about their treatment, feel engaged in the process, and increased treatment adherence (505). Previous literature has found similar results, with patients reporting increased involvement in treatment decision-making, increased knowledge about the treatment options and outcomes and greater comfort making decisions (525). As a foundation for quality, adolescents' knowledge shapes the way mental health services respond to them, and helps adolescents hold these services to account (370). For packages of services, the quality of engagement between the adolescent and therapist was found to lead to positive outcomes (526)(527). The quality of the patient-therapist relationship has led to greater treatment efficacy (528), increased autonomy, patient alliance and engagement, and greater favourable outcomes (509,529). It ensures that the adolescent's perspective is included, that they consent and assent to their treatment plan (530), and that they can address problems throughout the treatment process

(531). Evidence from the UK has shown that current services are not adequate for young people's mental health needs (532–534), with youth reporting that they should be more engaged in the design of mental health services. Studies on provider competency showed that training general healthcare providers about adolescent mental health conditions helped build their confidence and knowledge when treating adolescents (501,502,516). This aligns with previous literature as healthcare providers reported confidence, knowledge, and a lack of specialised providers as barriers to care (358,535). Provider competency is a foundation for the process of care (370). Adolescent mental healthcare providers require adequate clinical education and training on adolescent mental health. They also should provide evidence-based treatment, communicate clearly, ensure confidentiality and autonomy, promote timely and effective care and instil confidence in their adolescent patients that their conditions are being correctly detected and managed (370).

The quality of evidence, assessed using the NIH Quality Assessment Tool, ranged from poor to good, and included various limitations in study design which could bias the results of the review. Furthermore, there was variation in the approach and tools used within evaluations, the content of the service, as well as the sample size. Certainly, within the three standards we systematically reviewed, it is not possible to identify the most effective standard of quality or service delivery method, as conforms to the WHO global standards (359).

The findings of the systematic review showed that in LMICs there is a need for greater implementation research on quality in adolescent mental health services to understand how (if at all) quality is being implemented within these settings. This research could then be used to inform services and policies (519)(520). There also

needs to be local health care champions for adolescent mental health to play a stewardship role to ensure that policies and services improve (519).

In light of Covid-19, there has been increased attention on the importance of adolescent mental health in terms of research, particularly in high-income settings (521). However, how this translates to quality in adolescent mental health services in LMICs remains to be seen. Countries are grappling with responding to the acute health care needs of Covid-19, flu and other diseases (522). Furthermore, given the economic shift, the delays to health care experienced by all population groups, and overburdened and overstretched health sectors (522), ensuring quality within adolescent mental health care may not be prioritised.

#### 4.3.1. Study Limitations

This review should be interpreted within the context of a number of limitations. The author recognises that the WHO Global Standards quality framework is but one way of categorising quality. Leslie and colleagues (2018) warn that despite recent initiatives and greater focus on quality in healthcare, the various concepts and frameworks used to define and measure quality have led to “inconsistent assessments and incomparable investments, leaving researchers and policymakers without direction” (536). The author recognises that beyond mental health services, the focus of this review, there are various resources that can address adolescent mental health. This includes parenting interventions, which have been found to improve the mental health of adolescents (537) and school-based mental health interventions, which have also been found to contribute to improved health (378). The author also appreciates that an important aspect of quality care is continuity of care. For adolescents with

persisting mental health issues, the transition from child or adolescent oriented services to adult oriented mental health services is a particularly important aspect of continuity of care. While this was beyond the scope of this review, it is consistent with many adolescent services now using an extended definition of adolescence (538) up to 24 years.

None of the included studies focussed on the quality of psychotropic drug prescriptions or the use of telehealth, as this was beyond the scope of the review and a limitation. Psychotropic drug prescriptions are one component of treatment for severe adolescent mental health conditions, with evidence from the US in 2013 finding that 7% of adolescent participants were treated with psychotropic medication (539). Despite this, high quality evidence on the long-term effectiveness and safety of these medications for adolescents is limited, varying by condition and medication class (539–541). The use of telehealth for mental health conditions has a long history, but has been growing in recent years as an accessible, efficient, and cost-effective alternative to face-to-face consultations (363). Evidence has shown that telehealth is associated with patient satisfaction and is effective in evaluating and analysing mental health conditions (363). In the review, a number of studies were identified that used different elements of telehealth. More recently, there has been appreciation of the particular benefits of telehealth within the context of the COVID-19 pandemic, including in low-resource settings. Evidence suggests that telehealth is associated with a reduction in stigma and a higher participation rate among this age group, which may reflect adolescents ease with technology (273,324,364,367). However telehealth is also not without challenges, including around privacy, confidentiality, safety and equitable service use (324,367). Limited access to the internet is a particular challenge to equitable telehealth. Telehealth sessions are typically easier to record which, in the

context of informed consent, provides one mechanism to assess quality. Further research to identify which patients would most benefit from in-person visits or telehealth is indicated for common mental health conditions (367,542).

An additional limitation was the search terms used. Appropriate package of services and provider competencies are broad and vague. For example, appropriate package of services could have been distilled further into the following search terms: needs met, services, respect, referral, confidentiality, communication, diagnosis and treatment. This limitation could have contributed to publication bias. By breaking down the search into more specific terms, more studies applicable to quality in adolescent mental health care would have been yielded.

#### 4.3.2. Conclusions

This review indicates the lack of consensus on quality in mental health services, with most of the identified studies failing to conceptualise quality at all. Many challenges remain around improving the quality of mental health care for adolescents.



## Chapter 5. SOCIAL DETERMINANTS, NEEDS AND RISKS: SOCIAL SUPPORT, EXPOSURE TO VIOLENCE AND ADOLESCENT MENTAL HEALTH

Sections of this chapter (text, figures and tables) have been published in: Quinlan-Davidson M, Kiss L, Devakumar D, Cortina-Borja M, Eisner M, Tourinho Peres MF. The role of social support in reducing the impact of violence on adolescents' mental health in São Paulo, Brazil. PLoS One.

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### 5.1. Research Objective and Questions

In this chapter, the objective was: To analyse the role of perceived social support as a moderator between different exposures to violence and internalising symptoms among adolescent students in São Paulo city, Brazil.

As such, the chapter addresses the following research questions:

1. Does gender moderate the association between violence exposure and internalising symptoms?
2. Does perceived social support (from parents, friends, and teachers) moderate the association between violence exposure (serious victimisation, being bullied once/week, school violence, and community violence) and adolescent internalising symptoms across schools in São Paulo city, Brazil?

In doing so, the study tests the applicability of the stress-buffering model (**Chapter 1**, under section 1.3.1.3) to adolescent students exposed to community violence.

Determining whether social support and gender are potential moderators of violence and internalising symptoms, and whether this relationship induces variability between schools, could have important public health and clinical implications to inform

interventions and policies aimed at preventing or reducing the risk of internalising symptoms among adolescents exposed to violence (160). In Brazil, where violence is frequent and pervasive, too few strategies and interventions exist to avoid and prevent adolescents' exposure to violence and the resultant consequences.

## 5.2. Results

Study participants' characteristics and the adjusted proportions for internalising symptoms, violence, and social support among all participants are presented in Table 6.

Table 6. Characteristics of Study Participants and Mean of Internalising Symptoms, Violence, and Social support among Study Participants (weighted).

	Distribution		Mean(SD)	
	n	%	All	Range
Gender (n=2,551)				
Male	1,323	52.6		
Female	1,228	47.4		
Race <sup>a</sup> (n=2,597)				
White	1,163	44.2		
Black, Brown	1,268	49.0		
Yellow	100	4.4		
Indigenous	66	2.3		
Internalising Symptoms (n=2,611)			23.42 (7.87)	8-45
Depression			11.10 (4.07)	1-20
Anxiety			10.84 (3.95)	4-20
Self-harm			1.49 (1.05)	1-5
Violence				
Serious victimisation (n=2,614)			0.23 (0.42)	0-1
Bullied at least once per week (n=2,607)			0.23 (0.42)	0-1
School violence (n=2,617)			21.29 (6.30)	2-48
Community violence (n=2,617)			24.17 (8.93)	4-56
Perceived Social Support				
Positive parenting (n=2,615)			2.98 (0.66)	1-4
Parent involvement (n=2,615)			2.90 (0.76)	1-4
Friend support (n=2,614)			3.28 (0.61)	1-4
Teacher support (n=2,600)			2.89 (0.60)	1-4

<sup>a</sup>Race in Brazil is measured as phenotypic skin colour and ethnicity as explained in Travassos C & Williams DR. The concept and measurement of race and their relationship to public health: a review focused on Brazil and the United States. *Cad. Saude Publica*, Rio de Janeiro. 2004; 20(3): 660-678.

Table 6 presents descriptive statistics of gender, race and the study measures. Following previous studies from the Zurich team, means and standard deviations of the measures were presented (465,529,530). Internalising symptoms were measured using the SBQ, a transdiagnostic measure of psychopathology (460). As such, it does not provide cut-off scores and is not used for diagnostic purposes, but is intended rather for nonclinical populations (460). Following Murray and colleagues (2017), we combined depression, anxiety and self-harm into a single composite score (531). Scores for internalising symptoms were continuous and ranged from 8-45; within this, depression scores ranged from 1-20; anxiety scores ranged from 4-20; and self-harm scores ranged from 1-5. (27) Serious victimisation and bullied once per week were measured as binary variables (yes/no) whereas school violence (scores ranging from 2-48) and community violence (scores ranging from 4-56) were measured as continuous. Perceived sources of social support were measured as averages of the items (scores ranging from 1-4).

Cronbach's  $\alpha$  for the following indices were: Bully-Victim ( $\alpha= 0.70$ ), serious victimisation ( $\alpha=0.51$ ), school violence ( $\alpha=0.83$ ), community violence ( $\alpha=0.82$ ), positive parenting ( $\alpha=0.66$ ), and parent involvement ( $\alpha=0.74$ ). Pearson's correlation coefficients showed that internalising symptoms were significantly associated with increased serious violence victimisation within the previous year ( $r=0.17$ ,  $p<0.001$ ), being bullied once/week ( $r=0.28$ ,  $p<0.001$ ), school violence ( $r=0.29$ ,  $p<0.001$ ) and community violence ( $r=0.21$ ,  $p<0.001$ ) within the year prior. Internalising symptoms were also significantly associated with decreased levels of perceived positive parenting ( $r=-0.22$ ,  $p<0.001$ ), parent involvement ( $r=-0.27$ ,  $p<0.001$ ), friend support ( $r=-0.09$ ,  $p<0.001$ ), and being male ( $r=-0.38$ ,  $p<0.001$ ). Pearson's correlation coefficients showed that the social support scales were all significantly correlated with each other

( $p < 0.001$ ); positive parenting was correlated with parent involvement ( $r = 0.65$ ), while the correlation coefficients for positive parenting, parent involvement, friend support and teacher support scales were smaller ( $r \leq 0.22$ ) (Table 7). The ICC for the model including only internalising symptoms was 0.73% (95% CI 0.1%, 4.2%), suggesting that internalising symptoms do not vary much across schools. Table 8 illustrates the ICC results of the model with internalising symptoms only and final models.

Table 7. Pearson's Correlation Coefficients of Social Support Variables (weighted)

	Positive parenting	Parent involvement	Friend support	Teacher support
Positive parenting	1.00			
Parent involvement	0.65***	1.00		
Friend support	0.20***	0.22***	1.00	
Teacher support	0.17***	0.21***	0.18***	1.00

\*\*\* $p < 0.0001$

Table 8. Intraclass Correlation Coefficient of Model with Internalising Symptoms only and Final Models at the School level (weighted).

	ICC	SE	95% CI	
Model including only internalising symptoms	0.007	0.007	0.001	0.04
Serious Victimization x Positive Parenting	0.009	0.008	0.002	0.05
Serious Victimization x Parent Involvement	0.010	0.007	0.002	0.04
Serious Victimization x Friend Support	0.010	0.008	0.002	0.04
Serious Victimization x Teacher Support	0.008	0.007	0.002	0.04
Bullied x Positive Parenting	0.008	0.008	0.001	0.05
Bullied x Parent Involvement	0.008	0.008	0.001	0.05
Bullied x Friend Support	0.008	0.007	0.001	0.04
Bullied x Teacher Support	0.007	0.007	0.001	0.05
School Violence x Positive Parenting	0.010	0.008	0.004	0.04
School Violence x Parent Involvement	0.010	0.009	0.004	0.05
School Violence x Friend Support	0.020	0.008	0.005	0.04
School Violence x Teacher Support	0.010	0.008	0.004	0.04
Neighbourhood Violence x Positive Parenting	0.010	0.009	0.003	0.05
Neighbourhood Violence x Parent Involvement	0.010	0.009	0.003	0.05
Neighbourhood Violence x Friend Support	0.010	0.008	0.003	0.04
Neighbourhood Violence x Teacher Support	0.010	0.009	0.003	0.05

Following Korn and Graubard's statistical approach (489), internalising symptoms, violence, social support and gender did not vary significantly between schools (tables 10, 11, 12, 13). The results of the discriminant validity test on the social support scores revealed that items of positive parenting and parent involvement exceeded a correlation threshold of  $r > 0.4$ , following Perrot et al's (2018) recommendation of the correlation threshold (490), implying a good representation of parent support. All other items had a correlation coefficient with the score of their own dimension greater than those computed with other social support scores. These results indicated that positive parenting and parent involvement were separate constructs from friend support and teacher support (Table 9).

Table 9. Discriminant Validity of Social Support Scales (weighted)

	Positive parenting	Parent involvement	Friend support	Teacher support
q303	0.77	0.54	0.19	0.18
q307	0.73	0.41	0.08	0.07
q322	0.81	0.57	0.21	0.16
q305	0.47	0.72	0.17	0.17
q308	0.55	0.81	0.18	0.15
q313	0.51	0.71	0.15	0.15
q315	0.44	0.76	0.15	0.14
q402	0.16	0.18	0.82	0.15
q404	0.15	0.16	0.85	0.15
q406	0.19	0.17	0.77	0.13
q1802	0.13	0.14	0.16	0.80
q1805	0.15	0.17	0.12	0.83
q1808	0.13	0.17	0.15	0.78

Tables 10, 11, 12, and 13 show the LME estimates of the following fixed effects (level 1) on internalising symptoms: (i) the main effect of each exposure to violence; (ii) the main effect of each source of social support; (iii) the main effect of gender; (iv) the interactive effects of violence and source of social support; (v) the interactive effects of violence and gender; and (vi) the random effects across schools, expressed

as variance between schools (level-2). Additional tables analysing LME estimates of the fixed effects (level 1) on internalising symptoms: (i) the main effect of each exposure to violence; (ii) the main effect of all four sources of social support; (iii) the main effect of gender; and (vi) the random effects across schools, expressed as variance between schools (level-2) are found in Annex 9.

Table 10 illustrates the following effects on adolescent internalising symptoms: (i) main effect of exposure to serious victimisation; (ii) the main effect of each source of social support; (iii) the main effect of gender; (iv) the interactive effects of serious victimisation and each source of social support; (v) the interactive effects of serious victimisation and gender; and (vi) the random effects across schools.

Table 10. Linear Mixed-Effects Models of Serious Victimization, Type of Social Support & Interactions (weighted).

	Internalising Symptoms				
	Coefficient	SE	95% CI		p-value
<b>Model 1. Positive Parenting</b>					
Serious Victimization	3.03	1.93	-0.75	6.80	0.120
Positive Parenting	-2.42	0.36	-3.12	-1.72	<0.001
Male	-5.64	0.39	-6.39	-4.89	<0.001
Serious victimisation x Positive Parenting	0.20	0.64	-1.06	1.46	0.760
Serious victimisation x Gender (Male)	-1.51	0.63	-2.75	-0.27	0.020
Contrast (Male/Female) exposed	-7.15	0.58	-8.28	-6.02	<0.001
Variance (School)	0.45	0.38	0.09	2.37	1.000*
Variance (Student)	48.16	1.64	45.06	51.48	
<b>Model 2. Parent Involvement</b>					
Serious Victimization	2.73	1.59	-0.39	5.85	0.090
Parent Involvement	-2.75	0.29	-3.32	-2.17	<0.001
Male	-5.90	0.39	-6.66	-5.14	<0.001
Serious victimisation x Parent Involvement	0.24	0.52	-0.78	1.25	0.650
Serious victimisation x Gender (Male)	-1.45	0.59	-2.60	-0.29	0.010
Contrast (Male/Female) exposed	-7.35	0.53	-8.38	-6.31	<0.001
Variance (School)	0.46	0.34	0.11	1.95	0.88*
Variance (Student)	46.52	1.57	43.53	49.71	
<b>Model 3. Friend Support</b>					
Serious Victimization	3.66	2.55	-1.34	8.66	0.150

Friend Support	-1.05	0.36	-1.74	-0.34	<0.001
Male	-5.66	0.40	-6.44	-4.88	<0.001
Serious victimisation x Friend Support	0.14	0.72	-1.28	1.55	0.850
Serious victimisation x Gender (Male)	-1.77	0.65	-3.05	-0.50	0.01
Contrast (Male/Female) exposed	-7.43	0.59	-8.58	-6.28	<0.001
Variance (School)	0.52	0.38	0.13	2.17	1.00*
Variance (Student)	49.90	1.72	46.64	53.39	
<b>Model 4. Teacher Support</b>					
Serious Victimization	3.76	2.17	-0.49	8.01	0.080
Teacher Support	-0.90	0.35	-1.58	-0.22	0.010
Male	-5.75	0.41	-6.54	-4.95	0.010
Serious victimisation x Teacher Support	0.13	0.68	-1.20	1.45	0.850
Serious victimisation x Gender (Male)	-1.87	0.67	-3.18	-0.56	0.010
Contrast (Male/Female) exposed	-7.62	0.62	-8.83	-6.41	<0.001
Variance (School)	0.42	0.36	0.08	2.29	0.96*
Variance (Student)	50.18	1.71	46.92	53.65	

\*Wald chi-squared statistic using a Bonferroni-type adjustment testing the model's variance components

For example, students who reported experiencing parental involvement experienced an associated reduction in internalising symptoms (Model 2,  $b = 2.75$ ,  $p < 0.001$ ). Male students who reported experiencing serious victimisation also experienced a reduction in internalising symptoms ( $b = 1.45$ ,  $p = 0.01$ ).

Table 11 illustrates the following effects on adolescent internalising symptoms: (i) main effect of exposure to being bullied once per week; (ii) the main effect of each source of social support; (iii) the main effect of gender; (iv) the interactive effects of being bullied once per week and each source of social support; (v) the interactive effects of being bullied once per week and gender; and (vi) the random effects across schools.

Table 11. Linear Mixed-Effects Models of Bullied Once Per Week, Type of Social Support & Interactions (weighted).

	Internalising Symptoms				
	Coefficient	SE	95% CI		p-value
<b>Model 1. Positive Parenting</b>					
Bullied	5.76	1.78	2.26	9.26	0.001
Positive Parenting	-2.24	0.31	-2.85	-1.63	<0.001
Male	-5.38	0.35	-6.07	-4.68	0.030
Bullied x Positive Parenting	-0.12	0.63	-1.36	1.12	0.850
Bullied x Gender (Male)	-1.74	0.80	-3.31	-0.17	0.030
Contrast (Male/Female) bullied	-7.12	0.77	-8.62	-5.62	<0.001
Variance (School)	0.35	0.35	0.05	2.48	0.88*
Variance (Student)	46.03	1.57	43.06	49.21	
<b>Model 2. Parent Involvement</b>					
Bullied	5.34	1.44	2.51	8.17	<0.001
Parent Involvement	-2.53	0.27	-3.06	-1.99	<0.001
Male	-5.73	0.36	-6.44	-5.02	<0.001
Bullied x Parent Involvement	-0.13	0.54	-1.19	0.93	0.81
Bullied x Gender (Male)	-1.21	0.81	-2.79	0.38	0.14
Contrast (Male/Female) bullied	-6.94	0.76	-8.42	-5.45	<0.001
Variance (School)	0.38	0.35	0.06	2.35	0.89*
Variance (Student)	44.56	1.49	41.73	47.57	
<b>Model 3. Friend Support</b>					
Bullied	5.95	1.81	2.40	9.50	0.001
Friend Support	-0.67	0.35	-1.36	0.03	0.060
Male	-5.47	0.37	-6.19	-4.74	<0.001
Bullied x Friend Support	-0.11	0.57	-1.22	1.00	0.850
Bullied x Gender (Male)	-1.61	0.80	-3.19	-0.04	0.040
Contrast (Male/Female) bullied	-7.08	0.78	-8.61	-5.56	<0.001
Variance (School)	0.36	0.33	0.06	2.16	0.80*
Variance (Student)	47.92	1.62	44.85	51.21	
<b>Model 4. Teacher Support</b>					
Bullied	6.61	1.62	3.43	9.79	<0.001
Teacher Support	-0.69	0.32	-1.33	-0.06	0.030
Male	-5.55	0.38	-6.29	-4.82	<0.001
Bullied x Teacher Support	-0.30	0.56	-1.39	0.80	0.590
Bullied x Gender (Male)	-1.69	0.80	-3.25	-0.13	0.030
Contrast (Male/Female) bullied	-7.24	0.77	-8.75	-5.73	<0.001
Variance (School)	0.32	0.33	0.04	2.38	0.79*
Variance (Student)	47.86	1.58	44.86	51.07	

\*Wald chi-squared statistic using a Bonferroni-type adjustment testing the model's variance components

For example, students who reported being bullied once per week also experienced an associated increase in internalising symptoms (Model 1,  $b = 5.76$ ,



$p < 0.001$ ). For students who reported experiencing positive parenting, they also experienced a decrease in internalising symptoms ( $b = 2.24$  points,  $p < 0.001$ ). For male students who reported being bullied once per week, they experienced a decrease in internalising symptoms ( $b = 1.74$  points,  $p = 0.03$ ).

Table 12 illustrates the following effects on adolescent internalising symptoms: (i) main effect of exposure to school violence; (ii) the main effect of each source of social support; (iii) the main effect of gender; (iv) the interactive effects of school violence and each source of social support; (v) the interactive effects of school violence and gender; and (vi) the random effects across schools.

Table 12. Linear Mixed-Effects Models of School violence, Type of Social Support & Interactions (weighted).

	Internalising Symptoms				
	Coefficient	SE	95% CI		p-value
<b>Model 1. Positive Parenting</b>					
School Violence	0.48	0.10	0.30	0.67	<0.001
Positive Parenting	-2.09	0.72	-3.50	-0.68	0.004
Male	-1.35	1.16	-3.62	0.93	0.250
School violence x Positive Parenting	-0.01	0.03	-0.07	0.04	0.660
School violence x Gender (Male)	-0.26	0.01	-0.29	-0.23	<0.001
Contrast (Male/Female) exposed	-1.35	1.16	-3.62	0.93	0.250
Variance (School)	0.64	0.39	0.19	2.09	1.00*
Variance (Student)	45.57	1.56	42.60	48.74	
<b>Model 2. Parent Involvement</b>					
School Violence	0.38	0.12	0.16	0.61	0.001
Parent Involvement	-3.05	0.84	-4.70	-1.40	<0.001
Male	-1.92	1.10	-4.08	0.24	0.080
School violence x Parent Involvement	0.02	0.04	-0.05	0.09	0.580
School violence x Gender (Male)	-0.27	0.01	-0.30	-0.24	<0.001
Contrast (Male/Female) exposed	-1.92	1.10	-4.08	0.24	0.080
Variance (School)	0.68	0.39	0.23	2.08	1.00*
Variance (Student)	44.12	1.50	41.28	47.15	
<b>Model 3. Friend Support</b>					
School Violence	0.38	0.13	0.13	0.64	0.003
Friend Support	-1.75	0.83	-3.36	-0.09	0.040
Male	-1.52	1.12	-3.71	0.67	0.170
School violence x Friend Support	0.03	0.04	-0.05	0.10	0.480
School violence x Gender (Male)	-0.26	0.02	-0.29	-0.23	<0.001
Contrast (Male/Female) exposed	-1.52	1.12	-3.71	0.67	0.170
Variance (School)	0.78	0.40	0.29	2.11	1.00*
Variance (Student)	47.24	1.63	44.15	50.56	
<b>Model 4. Teacher Support</b>					
School Violence	0.32	0.11	0.11	0.53	0.002
Teacher Support	-1.82	0.84	-3.47	-0.17	0.030
Male	-1.64	1.12	-3.84	0.57	0.150
School violence x Teacher Support	0.05	0.04	-0.02	0.12	0.140
School violence x Gender (Male)	-0.26	0.02	-0.29	-0.23	<0.001
Contrast (Male/Female) exposed	-1.64	1.12	-3.84	0.57	0.140
Variance (School)	0.70	0.40	0.23	2.13	1.00*
Variance (Student)	47.6	1.61	44.56	50.89	

\*Wald chi-squared statistic using a Bonferroni-type adjustment testing the model's variance components

For example, for each student who reported experiencing school violence, they experienced an associated increase in internalising symptoms (Model 3,  $b = 0.38$

points,  $p < 0.003$ ). For students who reported experiencing friend support, this was associated with a reduction in internalising symptoms ( $b = 1.75$  points,  $p < 0.04$ ). Male students who reported experiencing school violence, also experienced an associated with reduction in internalising symptoms ( $b = 0.26$  points,  $p < 0.001$ ).

Table 13 illustrates the following effects on adolescent internalising symptoms: (i) main effect of exposure to community violence; (ii) the main effect of each source of social support; (iii) the main effect of gender; (iv) the interactive effects of community violence and each source of social support; (v) the interactive effects of community violence and gender; and (vi) the random effects across schools.

Table 13. Linear Mixed-Effects Models of Exposure to Community Violence, Type of Social Support & Interactions (weighted).

	Internalising Symptoms				
	Coefficient	SE	95% CI		p-value
<b>Model 1. Positive Parenting</b>					
Community violence	0.36	0.07	0.22	0.50	<0.001
Positive Parenting	-1.77	0.62	-2.99	-0.54	0.005
Male	-3.99	1.00	-5.96	-2.03	<0.001
Community violence x Positive Parenting	-0.03	0.02	-0.07	0.02	0.230
Community violence x Gender (Male)	-0.22	0.01	-0.25	-0.19	<0.001
Contrast (Male/Female) exposed	-3.99	1.00	-5.96	-2.03	<0.001
Variance (School)	0.56	0.42	0.13	2.41	1.00*
Variance (Student)	47.65	1.54	44.73	50.76	
<b>Model 2. Parent Involvement</b>					
Community violence	0.28	0.06	0.16	0.41	<0.001
Parent Involvement	-2.60	0.59	-3.77	-1.44	<0.001
Male	-4.73	0.98	-6.65	-2.80	<0.001
Community violence x Parent Involvement	<-0.01	0.02	-0.04	0.04	0.900
Community violence x Gender (Male)	-0.23	0.01	-0.25	-0.20	<0.001
Contrast (Male/Female) exposed	-4.73	0.98	-6.65	-2.80	<0.001
Variance (School)	0.58	0.41	0.15	2.28	1.00*
Variance (Student)	46.23	1.48	43.42	49.23	
<b>Model 3. Friend Support</b>					
Community violence	0.21	0.09	0.04	0.38	0.010
Friend Support	-1.49	0.67	-2.80	-0.19	0.020
Male	-4.54	1.04	-6.57	-2.51	<0.001
Community violence x Friend Support	0.02	0.03	-0.03	0.08	0.360
Community violence x Gender (Male)	-0.22	0.01	-0.25	-0.19	<0.001
Contrast (Male/Female) exposed	-4.54	1.04	-6.57	-2.51	<0.001
Variance (School)	0.57	0.40	0.14	2.25	1.00*
Variance (Student)	49.85	1.60	46.81	53.08	
<b>Model 4. Teacher Support</b>					
Community violence	0.34	0.07	0.20	0.48	<0.001
Teacher Support	-0.22	0.73	-1.66	1.22	0.770
Male	-4.45	1.03	-6.46	-2.43	<0.001
Community violence x Teacher Support	-0.02	0.02	-0.06	0.03	0.500
Community violence x Gender (Male)	-0.22	0.01	-0.25	-0.19	<0.001
Contrast (Male/Female) exposed	-4.45	1.03	-6.46	-2.43	<0.001
Variance (School)	0.49	0.39	0.10	2.33	1.00*
Variance (Student)	50.03	1.60	46.99	53.27	

\*Wald chi-squared statistic using a Bonferroni-type adjustment testing the model's variance components

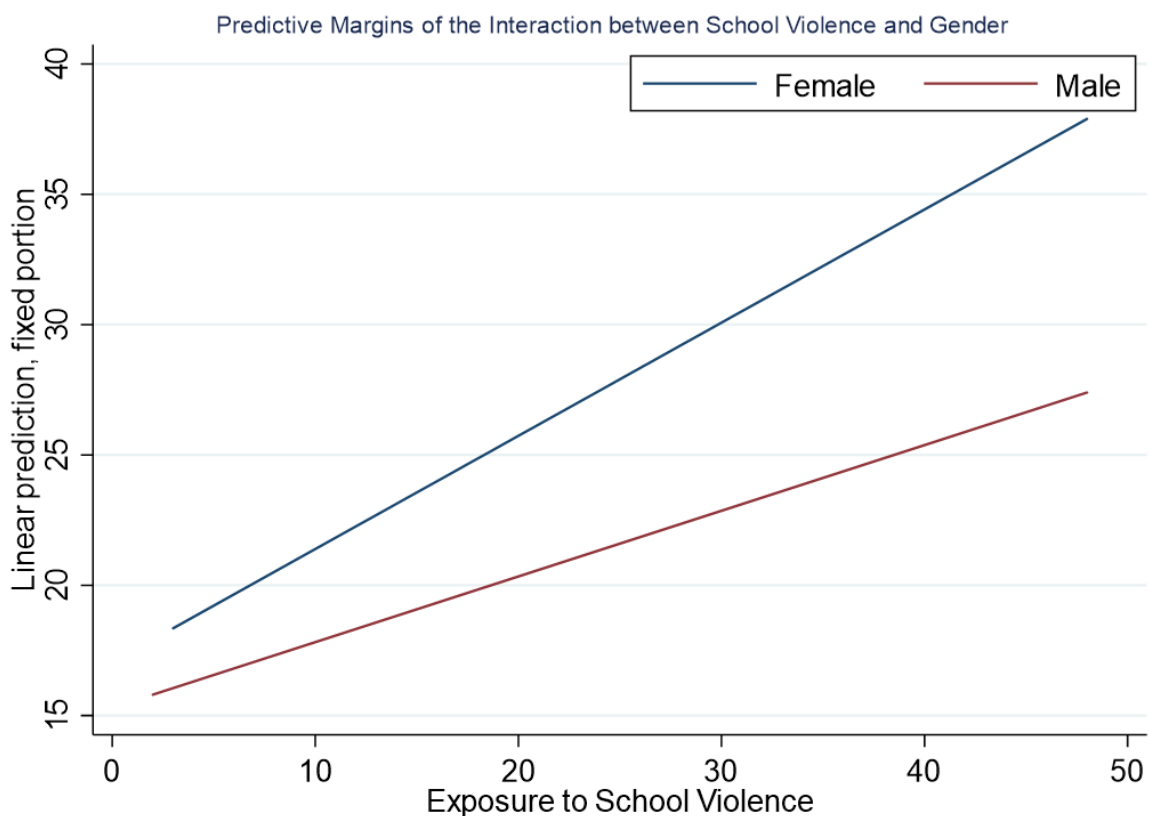
For example, for each student who reported experiencing community violence, they also experienced an associated significant increase in internalising symptoms (Model 4,  $b = 0.34$  points,  $p < 0.001$ ). For male students who reported experiencing community violence, they also experienced an associated reduction in internalising symptoms ( $b = 0.22$  points,  $p < 0.001$ ).

In all adjusted models, being bullied once/week, school violence and community violence were significantly associated with an increase in internalising symptoms (tables 11, 12, and 13) while serious victimisation was not (table 10). Across all adjusted models with interactions, social support from all sources, independently of its interactive effect with exposure to violence, was significantly associated with a decrease in internalising symptoms (tables 10 – 13). Family SES was significant when students reported exposure to school violence.

Gender significantly moderated the association between exposure to violence and internalising symptoms in most of the adjusted models. Boys who experienced serious victimisation ( $\times$  positive parenting:  $b = -1.51$ , CI:  $-2.75$ -  $-0.27$ ;  $\times$  parent involvement:  $b = -1.45$ , CI:  $-2.60$ -  $-0.29$ ;  $\times$  friend support:  $b = -1.77$ , CI:  $-3.05$ -  $-0.50$ ;  $\times$  teacher support:  $b = -1.87$ , CI:  $-3.18$ -  $-0.56$ ), were bullied once/week ( $\times$  positive parenting:  $b = -1.74$ , CI:  $-3.31$ -  $-0.17$ ;  $\times$  friend support:  $b = -1.61$ , CI:  $-3.19$ -  $-0.04$ ;  $\times$  teacher support:  $b = -1.69$ , CI:  $-3.25$ -  $-0.13$ ), school violence ( $\times$  positive parenting:  $b = -0.20$ , CI:  $-0.30$ -  $-0.10$ ;  $\times$  parent involvement:  $b = -0.18$ , CI:  $-0.28$ -  $-0.09$ ;  $\times$  friend support:  $b = -0.19$ , CI:  $-0.29$ -  $-0.10$ ;  $\times$  teacher support:  $b = -0.19$ , CI:  $-0.29$ -  $-0.09$ ) and community violence ( $\times$  positive parenting:  $b = -0.07$ , CI:  $-0.15$ -  $0.0001$ ) had significantly lower internalising symptoms compared to girls (tables 10-13). Boy's report of exposure to serious victimisation was not significantly different to girls (12.2% versus 10.6%,  $p = 0.48$ ), while there was a significant difference in reported exposure to being

bullied once/week (10.6% boys and 11.8% girls,  $p=0.05$ ), school violence (30.8% boys, 33% girls,  $p<0.001$ ) and community violence (30.3% boys, 32% girls,  $p<0.001$ ). Post-hoc simple effects contrast analyses found that boys who were exposed to serious victimisation, bullied once/week, and experienced community violence had significantly lower internalising symptoms compared to girls who had similar experiences (tables 10, 11, and 13). Figure 6 illustrates how gender moderates the relationship between school violence on internalising symptoms.

Figure 6. Gender as a Moderator Between Exposure to School Violence and Internalising Symptoms.



Positive parenting, parent involvement, friend support, and teacher support did not significantly moderate the effect of any type of exposure to violence and internalising symptoms among adolescent students.

The variance between and within schools was calculated. The variance of the random effects due to differences between schools in violence, social support and covariates ranged between 0.35 and 0.57. The variance of the random effects due to differences between students (after adjusting for exposure to violence, social support, and covariates) ranged from 44.49 to 50.34.

### 5.3. Discussion

The potential role of perceived social support in protecting adolescents in São Paulo city, Brazil, from the negative effect of exposure to different types of violence on internalising symptoms was investigated. Different sources of social support were examined to understand if and how each modified the association between violence exposure and internalising symptoms. The analysis showed that all types of violence exposure increased the risk of internalising symptoms, except for serious victimisation. It also showed that gender significantly moderated the association between exposure to violence and internalising symptoms. And that different sources of social support significantly decreased the likelihood of internalising symptoms among adolescent students. However, the analysis did not find that social support moderated the association between exposure to different types of violence and internalising symptoms.

The findings did not support the Stress Buffering Model when applied to the role of social support in the relationship between violence and internalising symptoms. Prior research has reached mixed conclusions, with some US studies showing similar results that social support did not moderate the association between violence exposure and mental health issues (67,268,269). Hammack and colleagues (2004) found that social support failed to protect against poor mental health outcomes when

adolescents were exposed to violence (67). The findings are similar to the those initially put forth by Luthar (2000), who interpreted that perceived social support buffers against internalising symptoms when stress is low but not when it is elevated (543). The role of social support in the relation between violence and internalising symptoms could also be related to the type and intensity of the violence victimisation. It has been posited that the emotional toll of being a victim of violence could suppress the positive effects of social support (67).

Given the protective role of social support, we expected there to be a school-level effect, however, the results showed no school-level variation of internalising symptoms, exposure to violence and social support. This could be attributed to unobserved and unmeasured factors (e.g., school characteristics such as teaching methods, quality of teaching, implementation of school guidelines and protocols), more complex feedback loops, dynamic interactions and contextual effects, which could potentially affect the variance between schools and among students.

Previous research has been mixed about the Stress Buffering Model (67,268,269), with our results not supporting the model. This finding could extend to the school level. It could also potentially be attributed to the measures used. For example, the social support measures were general and not specific to violence exposure. As well, this was a cross-sectional study and did not measure repeated or chronic exposure to violence, social support and internalising symptoms among adolescents and schools. Future longitudinal research over multiple time points should investigate this to clarify the underlying mechanisms and causal framework.

Prior literature has showed that adolescent girls are more likely to experience internalising symptoms compared to boys when exposed to community violence (404). Although boys exposed to violence were significantly less likely to have internalising



symptoms, this could be attributed to gender differences in the way girls and boys experience, process and express trauma. Contrary to prior literature (157,163,404), the analysis showed that girls reported greater exposure to being bullied once/week, school violence and community violence as compared to boys. This highlights a need for a thorough assessment of exposure to community violence by gender, and potentially greater intervention targeting of girls exposed to violence.

Gender was measured as binary (male/female), and we were unable to investigate within-gender differences in mental health. Findings showed that adolescent boys who were exposed to violence were less likely to experience internalising symptoms, compared to girls. This effect was independent of social support.

Surprisingly, adolescent girls reported greater exposure to violence compared to boys. This contradicts prior literature (157,163,404), as well as data showing that boys are more likely to engage in and experience violence in Brazil (148). Further research needs to be conducted on this subject to understand these underlying mechanisms.

Meanwhile, prior literature has shown that males are less likely to display internalising symptoms compared to females (285,533,534). This could be attributed to violence desensitisation, masking of emotional responses, gendered diagnostic criteria (535,536) and gender socialisation (537). Mrug et al (2016) showed a desensitisation effect of violence exposure and internalising symptoms among male adolescents. In limited resource settings, where violence is pervasive and the communities are controlled by drug cartels, male adolescents could experience a habituation to violence and lower emotional response (538). Further, prior research has posited that males use substances to mask depression and anxiety (539–541).

Evidence has also argued that the current diagnostic criteria for depression and anxiety are gendered and that males have a distinct phenotype for depression (535). Finally, boys are raised, socialised and expected to be independent, assertive, aggressive and competitive (542–544). As a result, males may be less likely to express their emotions or divulge feelings compared to girls (537).

Future research could look at the trajectories of internalising symptoms across adolescence to understand how adolescent males and females experience internalising symptoms. Furthermore, future research should investigate the role of gender socialisation on mental health, the impact of masculinity on mental health, and the differences in mental health symptomatology among men and women (537).

Findings showed that social support was inversely related to internalising symptoms among students in all adjusted models. Positive parenting and parent involvement played a significant role in decreasing internalising symptoms. Prior literature from the US has found similar results, with high levels of parent participation, involvement, and overall support associated with decreased levels of depression, anxiety and PTSD among adolescents (67,268). It has been posited that when adolescents are exposed to violence, they seek support from their parents, which helps the adolescent develop coping mechanisms, enables access and promotes supportive resources, and encourages competence in handling issues (544). Friend support was also significantly associated with decreased internalising symptoms among students. Prior literature shows that support from friends can serve to promote exploration, the adolescent's own self-worth, satisfaction of socio-affective needs (e.g., affection, love, attachment, loyalty, security), and new skill development (545). Teacher support was found to decrease the likelihood of internalising symptoms. As school plays a large role in adolescents' lives, teacher support could promote positive

mental health outcomes within the school context (269). These findings suggest that social support may lessen negative mental health effects; and policies and programs that focus on promoting and improving social support could be beneficial.

Findings also showed that social support was inversely related to violence exposure. This is in line with previous evidence, which shows that social support can protect against negative experiences, such as violence (67,238,239,255,546,547). Social support can help the adolescent cope with violence victimisation through advice, boosting self-esteem and ensuring that the adolescent maintains a feeling of confidence (255). It also helps adolescents disclose their experiences to their parents, friends and teachers, which could help them cope with stressful events (67).

The differences between bullying, serious victimisation, school violence and community violence are due to the following: (i) Bullying was measured as being purposely ignored or excluded; laughed at, mocked or insulted; hit, bitten, kicked, or having hair pulled; having possessions stolen, broken, or hidden; and being sexually harassed (hit on, groped); (ii) serious victimisation was measured as victimisation of violence by robbery, assault with a weapon or object that led to injury, assault without a weapon or object that led to injury, and sexual assault; (iii) school violence as witnessing or hearing about violence at school; and (iv) community violence as witnessing or hearing about someone being murdered; carrying a weapon; someone that was bribed by police. Potential reasons as to why serious victimisation was not associated with an increase in internalising symptoms could potentially be due to sample size, violence desensitisation or recall bias of the exposure to this type of violence.

The study has some limitations. Adolescents enrolled in school and present on the day of the survey were included; they may be different from those absent or not

enrolled in school. The study did not investigate the quality of the support received, the perceived amount of support given, or the support provided. Due to the cross-sectional design of the study, investigating reverse causality between poor mental health and violence exposure, and social support and violence exposure was not possible. School and community violence through adolescents' perceptions and not with objective indicators (i.e., homicide rates, the number of police apprehensions) were measured. Perceived social support as general tendencies were assessed, instead of specific responses to the exposure experienced. The serious victimisation scale has lower internal consistency ( $\alpha=0.51$ ) than the other scales. This may have been driven by the first and second factor, however, all items were included as removing any item from the scale would result in a smaller  $\alpha$ . It is acknowledged that this was an observational study and that the measurement level of the outcomes was ordinal, therefore, conclusions about absolute changes are subject to this constraint. Our study did not allow for expanded gender considerations, as well as sexual orientation. Future research should investigate these factors as previous research has shown that gender and sexual minorities are at-risk for greater violence exposure (145).

There are some limitations associated with the measures included in the study. For example, self-harm in the SBQ included one item, which does not support adequate reliable ranges of measurement (460) and is therefore a limitation of this study. Furthermore, the Alabama Parenting Questionnaire (461) was adapted to the study and included 3-items to measure positive parenting and 4-items to measure parental involvement. These items were broad, and may not support the adequate reliable range of measurement and represent the construct that they are intended to measure. Similar limitations were associated with the measures of friend and teacher

supports. These measures were developed by the Zurich project team (462). The dimensions of social support were not specific to the violence experienced. Also, these measures may not be externally valid or generalisable to adolescent students' experience in Sao Paulo. Similar limitations are found with the measure of serious victimisation.

#### 5.4. Conclusions

The study offers a unique contribution to the literature on adolescents living in São Paulo city and the associations between social support, violence and internalising symptoms. It offers a starting point for future in-depth quantitative and qualitative studies on this topic in São Paulo city. The analysis shows that social support may play a significant role in lowering the likelihood of developing internalising symptoms among adolescents, particularly females. Due to the pervasiveness of violence in Brazil, and that there are few strategies for adolescents to avoid exposure to violence, support from parents, friends and teachers could potentially be interventions to prevent poor mental health outcomes among this age group.

## Chapter 6. ADOLESCENT MENTAL HEALTH ACTIONS: QUALITY IN THE PROVISION OF ADOLESCENT MENTAL HEALTH SERVICES IN SÃO PAULO CITY, BRAZIL

Following the investigation of exposure to violence and social support on adolescent mental health, this chapter investigates mental health service actions. Specifically, the aim of this chapter is to explore health care providers' definition and perceptions of quality in adolescent mental health services in low-resource and violent settings in São Paulo city, Brazil.

### 6.1. Introduction

Despite mental health conditions having their first onset during adolescence and young adulthood, these conditions often go undetected (6,98,380); this is coupled with an adolescent's poor quality of mental health care services (389) which contributes to seeking, receiving and continuing care (368). This is particularly salient in limited resource settings, such as São Paulo city, Brazil, where there is a diverse representation of socioeconomic levels and large inequalities (395); as well as a lack of access to essential services; low governmental investment; high levels of poverty; greater exposure to health risks, including community violence; a lack of cultural and leisure options; and a lower likelihood for social mobility compared to other regions of the city (396,397). This further increases the adolescents' vulnerability to develop mental health conditions (323).

The point of entry for adolescents into the mental health system in São Paulo city is through the Basic Health Units (BHU), although adolescents can seek services at the Psychosocial Care Centres for Children and Adolescents (PCCca), as well as through hospitals, emergency services, and ambulance services (398). Adolescents

access these health services through spontaneous demand or referrals from parents and family, schools and other services and sectors (493,548). At the same time, schools and non-governmental organisations may offer health workshops or activities in conjunction with the BHU and PCCca (493).

To the author's knowledge, health care providers' perception of quality in adolescent mental health services in Brazil has not been explored. This illustrates a gap in the literature and one this study aims to contribute to, particularly as adolescence represents a window of opportunity for early mental health prevention (5).

In the current study, qualitative methods were used to explore health care providers' definition of quality in adolescent mental health service delivery in resource-limited and violent neighbourhoods of São Paulo city, identifying enablers and barriers within these services. Determining how health care providers perceive the quality of mental health care could help clarify how adolescents' needs are (or are not) being met within mental health services. Identifying these factors will also help address issues related to the treatment gap (314,549). The evidence generated from this study can be used to inform mental health service delivery, programmes, strategies and interventions (321) on the provision of quality in adolescent mental health services.

#### 6.1.1. Objectives

- i. Explore health care providers' definition of quality in adolescent mental health care services.
- ii. Identify the enablers and barriers in adolescent mental health care.
- iii. Examine the perceived role of quality in low-resource health services.

### 6.1.2. Research Questions

To address these objectives, the study had the following questions:

1. How do health care providers define quality in adolescent mental health services?
2. What role does quality play in mental health care to adolescents within challenging contexts?
3. What are enablers and barriers to mental health care services for adolescents?

### 6.2. Results

Descriptive information on included participants are described in table 14.

*Table 14. Descriptive Statistics of Participants (n=45)*

	<b>Distribution</b>
<b>Gender</b>	
Male	24% (n=11)
Female	76% (n=34)
<b>Occupation</b>	
General Practitioner	38% (n = 17)
Nurse	24% (n = 11)
Social worker	9% (n = 4)
Occupational therapist	9% (n = 4)
Psychologist	9% (n = 4)
Psychiatrist	9% (n=4)
Neuropaediatrician	2% (n=1)
<b>Level</b>	
BHU	69% (n=31)
PCCca	31% (n=14)
<b>District</b>	
Campo Limpo	62% (n=28)
Vila Andrade	36% (n=16)
Lapa	2% (n=1)

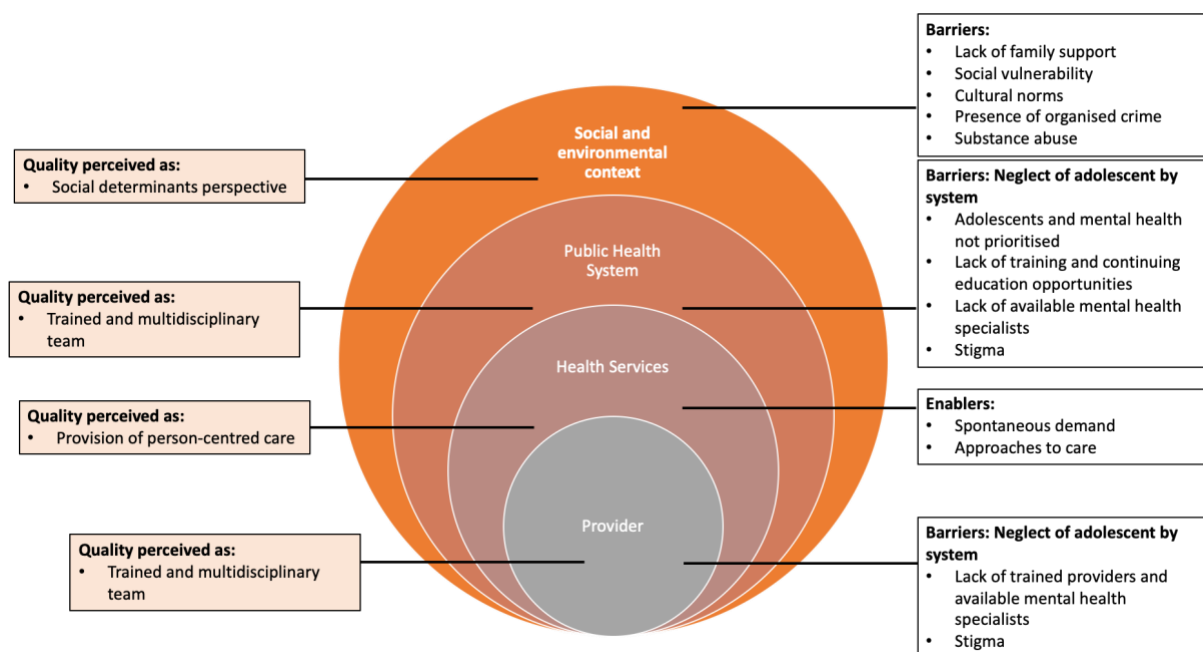
The context of health care provider assistance is described first, including health care providers' daily activities and perceived common adolescent mental health



conditions presenting at the BHU and PCCca. How health care providers define quality in adolescent mental health care and the barriers and enablers to the provision of adolescent mental health services are then explored.

Participants defined quality within a perspective that focussed on the social determinants. Health care providers also considered quality as having a trained and multidisciplinary workforce, as well as providing person-centred care. Themes on barriers to quality, as reported by participants, were focussed on neglect of the adolescent by the health system and the social and environmental context; while enablers to quality included spontaneous demand and approaches to care. The themes and subthemes to quality, as well as barriers and enablers within the provision of services are described in Figure 7, organised as a four-level social-ecological model of the health service environment. The model considers the interaction of the provider, health services, public health system and the overall social and environmental context as influencing the provision of adolescent mental health services.

Figure 7. Themes and Subthemes on Quality and Barriers and Enablers to Quality within the Provision of Adolescent Mental Health Services



### 6.2.1. Context of Assistance

Health care providers were asked about their roles and responsibilities at the BHU and PCCca, as well as the services they provide to adolescents with mental health problems.

At the BHU, the Family Health Strategy (FHS) participants (GPs and nurses) described providing comprehensive clinical family health care across the life course, with a focus on maternal and child health, older populations and NCDs. The type of care provided included outpatient, home visits and responding to minor emergencies. Services involved initial consultations, diagnosis, treatment, case management and coordination of care. In terms of adolescent health services, health care providers at the BHU described how mental health conditions would be detected at the initial consultation. FHS participants discussed working with, and relying upon, the Family Health Support Nucleus (FHSN) teams to respond to adolescent mental health cases to develop a care plan and link them with referral services (e.g., PCCca) in an ad-hoc manner, on a case-by-case basis. FHS team members perceived adolescents as a vulnerable group in general, and due to a lack of training and education on adolescent mental health and historical strategic BHU priorities, adolescents remained neglected.

As one health care provider stated: *I am a family doctor, so I am responsible for 4,000 users, for the families in my catchment area. I assist the families longitudinally. So we care for the patient... from childhood to old age. That is, all ages and all cases... to support all complaints. And then, as we assess if there is a need, we ask for support from the FHSN, which includes a psychiatrist, a physical therapy, a psychologist and they provide support to help us better manage the case (P12, GP).*

FHSN participants at the BHU (psychologists, psychiatrists, social workers and occupational therapists) described providing specialised clinical care and support to the FHS teams across the life course. These health care providers worked across several BHUs in the region, with limited hours in each BHU, thus restricting their availability to support FHS teams. Adolescent mental health cases were referred by FHS teams (GPs, nurses and community health agents [CHA]). Within this framework, adolescents could not spontaneously seek services with the FHSN team. The FHS teams worked with the FHSN team members to make an appointment for an initial consultation with the patient. For adolescents specifically, FHSN team members developed and implemented group activities at the BHU (social and cultural activities such as literature, theatre and music depending upon resources available). The aim of which was to provide support to adolescents with mental health issues, as they considered group therapy effective. However, they did not detail the arrangement of these groups (i.e., groups arranged according to mental health condition). Due to the pandemic, however, FHSN team members were attempting to coordinate online group activities to stay connected with the adolescents. FHSN participants described coordinating the adolescent's therapeutic care plan with services in the network, including the PCCca and schools in the region. They also described guiding families on care resources available within the network and community. Participants stated that the activities implemented in each BHU varied, depending upon catchment area needs, the availability of network services and financial resources.

As one FHSN team member explained: *I am from the FHSN, supporting two BHUs... which comprises 12 FHS teams. Both the direct clinical care of families, of all age groups... of all health issues at the level of primary care, to the mental health actions of permanent education, of network support... The FHSN team has a double*

*objective: to provide clinical care to the population and support the FHS teams. Within this there is individual care, family care and meetings with the teams, group care, development of care lines then, women's health, adolescent's health, children's health, violence, men's health... We articulate the network... this service goes beyond the complexity of primary care. So the FHSN is actively involved with the services of the network, with the PCCca, and the rehabilitation of specialized care (P30, Psychologist).*

For PCCca participants, daily activities were described as welcoming children and adolescents; initial assessments and psychiatric evaluations; developing a multidisciplinary therapeutic plan; monitoring care and drug treatment; holding therapeutic group activities; providing referral services; coordinating network care (shared services, case discussions, home visits and school visits) with the BHUs, schools and social assistance services; and holding meetings with the BHU and other networks services. Participants described the aim of PCCca care as psychosocial rehabilitation for children and adolescents with mental health conditions.

As one participant stated: *We serve a population from 0 to 18 years in the coverage area Campo Limpo, Capão Redondo and Vila Andrade, regions with a lot of psychosocial vulnerability. I am responsible for psychiatric medical care, participating in therapeutic group and intersectoral network meetings... We sometimes make home visits or consultations outside the services... whether in the BHU, wherever the child is and they cannot reach the PCCca (P34, Psychiatrist).*

Health care providers were also asked about common adolescent mental health conditions that presented to their facility. At the BHU, health care providers perceived that the most common mental health conditions among adolescents were anxiety, depression, self-harm and suicidality. At the PCCca, health care providers

described providing care to those with autism spectrum disorders, suicidality and self-harm, psychosis, conduct disorder, developmental delays, mood disorders (depression and bipolar) and schizophrenia.

### 6.2.2. Quality

Health care providers gave various definitions of quality in adolescent mental health care. Overall, these definitions centred on a social determinants perspective; as well as service organisation perspectives focussed on multidisciplinary, trained health care provider workforce and person-centredness. They considered these definitions ideal and impossible to realise given the limited resources and challenging contexts within which participants worked. Participants were asked if they thought quality was a priority within the health services provided. Of those who were asked, four health care providers at the BHU stated that quality was not, while 29 participants from both the BHU and PCCca stated that it was a priority.

#### 6.2.2.1. Social determinants perspective

According to health care providers at the BHU and PCCa, quality of adolescent mental health services was defined as addressing the social determinants of mental health. For example, participants highlighted addressing education, unemployment and poverty. Health care providers were of the opinion that the social determinants within the adolescent's environment, had a greater influence on the adolescent's mental health than the care they provided at the health facility. Participants perceived their individual level actions as ineffective and that only societal level changes would lead to improvements in the adolescent's mental health. Furthermore, it suggested that the current way of identifying, diagnosing and treating adolescents with mental

health conditions at the individual level was ineffective, with changes needed beyond what was provided in the health facility.

Participants defined this approach as activities and services implemented in the community to improve adolescent mental health, such as cultural, leisure, education and employment activities in places the adolescent frequented. The aim of these actions would be to strengthen the adolescent's social capital, skills training and employment opportunities to improve their mental health. They believed these activities would increase the adolescent's engagement and thus the quality of the service, as opposed to delivering services solely through the health facility. They were of the opinion that these activities would improve not only the adolescent's mental health, but also their current and future prospects within these limited-resource and violent settings. Health care providers spoke of how this approach would focus on prevention and promotion, building mental health care into the adolescent's daily routine, helping the adolescent integrate into society.

As one participant articulated: *Quality is the promotion of a life project [career]. It is not about reinforcing recovery from illness but to be able to access new possibilities in life that these adolescents had before they got ill. That would be quality, not to focus on the recovery of the illness... When we are able to reach more [adolescents] by conducting activities in the community. It's actually changing the focus, the structure of the agenda to one of promotion and not recovery (P30, Psychologist).*

They were also of the opinion that these services would be able to reach a wider audience of adolescents through the implementation of outreach services with other sectors. Some health care providers reported that outreach community activities had been implemented in the past, involving educational activities at schools, but that

these centred on other health issues, such as sexual and reproductive health. There was a lack of clarity, however, on how outreach activities and intersectoral collaboration would be financed, developed and implemented, particularly as they acknowledged the dangerousness of the environment within which the adolescent lived. Despite this, some participants reported developing case-by-case therapeutic plans for adolescent patients within the community. This was outside of the remit of their work plan and facility resources, and largely based on their values and beliefs in being able to enrich the adolescent's development and mental wellbeing.

*I stopped to think about a life project [career] for this teenager. Because if not, he will easily slip back into the life he knows: substance use, vulnerability. Anyway. So how do we build this network [for him]? We think of our friends who do this and those that would agree to an internship. So you make an underground network. So we've talked to a colleague and arranged for him to go twice a week, to learn about [making] tattoos [becoming a tattoo artist]. We build this with them... we build a kind of private network to be able to think about care (P26, Nurse)*

#### 6.2.2.2. Trained, Multidisciplinary Workforce

Participants described quality as a trained, multidisciplinary team, providing targeted care to adolescents. Aligned with a social determinants perspective, this involved identifying, learning and comprehensively responding to issues related to the adolescent's mental health condition.

Health care providers stated that quality in adolescent mental health care involved valuing different perspectives when discussing cases; trouble-shooting service and network challenges; exchanging ideas and learning from each other; and developing, implementing and monitoring a comprehensive therapeutic care plan for the adolescent.

*It is clear that access in itself is not quality. He [the adolescent] needs to have professionals who are adequate and updated on adolescent mental health care to be able to absorb it better. And in addition to absorbing this better, to understand what are the other issues related to this, whether there is violence or not, and based on that, take the necessary steps (P10, GP).*

#### 6.2.2.3. Person-centred Care

Participants described quality as providing services that were person-centred, in which services responded to adolescents' mental health needs and demands. This was articulated as adherence, continuity of care, improved outcomes and reintegration into society, with the health care provider trying to provide the best care possible within the resources and time available. They also were of the opinion that it involved listening to, and developing a bond with, the adolescent, providing confidential services.

As one health care provider articulated: *We conduct patient-centred consultations by trying to create empathy with the patient, a bond with him. (P3, GP).*

Another participant stated: *I think one of the points could be the adolescent's adherence to the service, a response to treatment that involves not only a clinical response to the medication, but an expansion of the repertoire, an expansion of desire, an expansion of possibilities, and offer of expansion of possibilities for this teenager and a space for the teenager to be recognised, listened to and understood as a place of reference. From a clinical point of view, I understand it as quality. (P34, Psychiatrist).*

To develop a bond, health care providers reinforced to the adolescent that their role as provider was to listen to the adolescent, take care of them and ensure they felt safe. They stated this involved empathic listening and a judgement- or criticism-free space where there was no right or wrong. They also reported that they would insist



with the adolescent that they were equal partners in the care relationship. As a result, participants perceived that bonding allowed adolescents to feel at ease. They reported that they knew the adolescent was bonding when they were more relaxed around them.

*I define as quality that the teenager approaches us when we pass by and wants to tell us something, or wants to touch us, wants to show that you are different. I think that this is quality, it shows that they are bonding, that they are relaxing, that they are returning to the service, that they want to tell, that they feel like playing to express themselves. Without criticism. It's not just an effective medication, it's how much they want to come to the service, it's how much they want to tell us things (P12, GP).*

Health care providers also defined quality as providing confidential services. They reported that this was a concern for adolescents and that they would approach each initial consultation by telling the adolescent that nothing would be shared with parents or families, unless it was authorised by the adolescent and that everything was confidential.

Other participants defined quality as having ample consultation time. This was recognised as important to ensure that the adolescent communicated what they wanted, while providing time for treatment. Health care providers believed that mental health problems required more time than other health services, and that quality would be compromised if there was not enough consultation time for the adolescent. There were a mix of factors that contributed to limited mental health services for adolescents. Not only was there a lack of available health care providers, limited time per consultation, but there was also a lack of trained health care providers to provide quality of mental health care.

Relatedly, quality, according to some participants, was defined as continuity of care, providing long-term mental health care services to the adolescent. This was expressed as how much the adolescent wanted to return to the service and that one consultation would not be enough time to resolve mental health issues.

When asked about quality, another health care provider reported: *To be able to continue this care. So not only in the first appointment, but in the long-term follow-up of this person, and with that we have effectiveness of care. Being sensitive professionals who can understand what is best, how we can help these adolescents. So I think this is it* (P6, GP).

### 6.2.3. Barriers to Quality

Overall, health care providers at the BHU and PCCca perceived quality and the provision of adolescent mental health services to be adversely influenced by the limited-resource and challenging contexts within which they worked. Indeed, they were of the opinion that adolescents were largely neglected by the health system. They also acknowledged the role that the social and environmental context played in the provision and uptake of these services.

#### 6.2.3.1. Neglect of the Adolescents by the Health System

According to participants, adolescents remained largely neglected by the health system, with services failing to meet their mental health needs (550,551). This theme articulated neglect in terms of a lack of prioritisation of adolescents within the system; a paucity of trained providers and mental health specialists; as well as stigmatising attitudes about adolescents.

Not prioritised within the system

Health care providers, particularly at the BHU level, reported that they experienced limited human and financial resources within the provision of adolescent mental health services. Participants acknowledged that adolescent mental health services were limited, with the current system not conducive for adolescent mental health care. Participants noted that the historical priorities of the UHS at the BHU level meant that some population groups (mothers, children and older populations) were prioritised over adolescents. This illustrated a lack of collective and organisational effort to improve the mental health of adolescents within health services. It also illustrated that health care providers' knowledge of how to respond to adolescents' mental health needs within the community was limited, as adolescents were not part of the goals or priorities of the service. This was mainly expressed by health care providers at the BHU level, however, some health care providers at the PCCca acknowledged that the specialised mental health services were targeted more towards younger children as opposed to adolescents.

Participants recognised a need to help this population group and engage them in the services, yet the services remained limited in their response due to a lack of resources, adolescent strategies, approaches and targeted actions to improve the uptake and utilisation of these services for adolescents (mainly at the BHU level) and meet their mental health needs. There was also a lack of physical space within health facilities to deliver mental health services to adolescents. Also, health care providers acknowledged that with only one PCCca in the region, there was not enough supply to meet the needs and demands of adolescents within the territory.

One participant expressed: *I think services may be missing in healthcare facilities that are more targeted at the adolescent... we offer a lot of things like that for the elderly, to assess the elderly's health ... and consultations with prenatal care for*

*pregnant women, there is childcare there that we have to do, regular childcare monitoring. Now for adolescents, there is no program for adolescents. (P21, Nurse)*

At the BHU level, health care providers reported no clear service protocols, organisational flow or structure for adolescent mental health services. Rather, BHU services were described as being provided in an ad-hoc manner, instead of an organised package based on the mental health needs of adolescents within the community. FHS participants, in particular, stated that they lacked the knowledge and capacity to respond to adolescent mental health cases and relied on FHSN team members. However, FHSN team members were restricted in supporting FHS teams due to working at multiple BHUs in the region with limited hours at each facility. There was also an acknowledgement by FHSN team members that there were no targeted and specific actions aimed at adolescents either.

As one FHSN participant articulated it: *Look, today in these units that I'm in, we don't have any specific action, nothing collective, nothing like that. In these units that I'm in, we don't have these approaches and we usually do more than individual appointments, appointments with the family. I think we are evaluating a lot on a case-by-case basis, there is nothing structured and aimed only at adolescents, and there is no mental health (P41, Social Worker).*

As one health care provider stated: *So unfortunately, the workload is very reduced. 15 hours for the Occupational Therapist... it's 15 hours for 6 teams, she distributes those 15 hours among 6 teams. And all the teams have an average of 4,000 people. We identify the cases and we end up not being able to respond, manage and refer the cases fluidly. We have this problem that we don't have the fluidity to discuss cases, to trigger other services, because we have other demands, many other demands. And then we choose what the priorities are and adolescents are not always*

*prioritised. Sometimes what is prioritised is dictated by the national primary care policy. Adolescents are not prioritised because the national policy gives priority to pregnant women and children up to 2 years of age, diabetics, hypertensive patients, chronic diseases. So basically this is our priority, that we have to be accountable to. As there are many people and this is a place of extreme vulnerability, there are other demands as well, acute demands from acute illnesses... And then we end up not being able to prioritise adolescents (P1, GP).*

Another FHSN participant stated: *The health units themselves, they are not welcoming to the teenager. Health Units throughout Brazil, they are welcoming for children, for pregnant mothers and now starting for the elderly. So it's a teen-free environment. There are not many teenagers there (P29, Psychiatrist).*

Health care providers also acknowledged that they were not effectively reaching adolescents in the community with these services. They perceived that there needed to be greater outreach services for adolescents. This is despite the operation of CHA as part of the Family Health Strategy in the region (25), illustrating that adolescents were not prioritised within this programme, leading to a lack of service provision targeting adolescents.

Relatedly, health care providers were of the opinion that a lack of prevention efforts by the facility to improve adolescent mental health in the community led to adolescents arriving at services already in mental health crisis mode.

*So we are not providing care to the adolescent in a preventive manner; we are already caring for them for a curative issue. We are not achieving this prevention, we arrive too late [to provide care]. So this is still failing, this is our failure, it is a failure that we need to correct (P23, Nurse).*

Health care providers also recognised the importance of intersectoral collaboration through the network to coordinate care and activities for adolescents, yet they often faced unstable network support. At both the primary and secondary level, health care providers were frustrated at working with other service levels and sectors to provide quality mental health care. There were several reported reasons intersectoral collaboration of the formal support network was a barrier to quality care, including overburdened systems; bureaucracy; as well as a lack of successful referrals and proper case management. Participants also attributed it to limited communication, limited training on adolescent mental health, and a lack of integration in the network to provide adolescent mental health care. Health care providers perceived that this led to a lack of timely and appropriate care, as well as delayed treatment. As such, health care providers were wary of triggering this mechanism as this may not necessarily lead to appropriate or quality care for the adolescent.

As one health care provider articulated: *So when we need the Child Protection Court, it is very difficult because the Council is not on our side. When we need to refer this person to a hospital, we're distressed because we don't know if the adolescent will be treated humanely, the way that we are treating them. So when it depends exclusively on us, on our assistance, I think our assistance is good, we're actually there. But when we depend on everything else, there is a gigantic hole. So I think we fail in this area, too, too, too much in this. There is no direct dialogue where we talk and know they [other services] are taking us seriously. So I think this is a big, big question, and in that sense I think it's really bad (P6, GP).*

At the same time, participants at both the BHU and PCCca reported experiencing a high demand for services, yet low supply of health care providers. One of the consequences of this, as expressed by participants, was an overburdened work

schedule. This was described as adhering to schedules that did not prioritise adolescent mental health, and a lack of working hours and consultation time to respond to each case appropriately. Some perceived that this negatively impacted the provision of quality care as their work schedules and the institutional goals did not allow for longer consultation time and the opportunity to develop a bond, by giving the adolescent enough time to talk. This time constraint was also perceived as affecting the adolescent's therapeutic plan and trust in the system. They also described this as a barrier to planning and strategising on adolescent mental health within the facility. Participants recognised this as a gap in service provision wherein they felt they were responding to emergencies and not providing adequate or appropriate care to the adolescent. To respond to all of the needs and demands and provide quality mental health care, they acknowledged that they needed more health care providers within the region, a smaller number of patients per team and another PCCca in the region.

As one health care provider articulated: *If there are a lot of people to be served, and few professionals, there is no way to have quality. There is no way to see this teenager as an individual and determine how to respond to them. You know? In many scenarios, especially within the peripheries of the region or in places with a lot of people, it ends up being more about mass care, something like an industrial production. And teenagers don't usually fit into that* (P31, Psychiatrist).

As one health care provider stated: *And because of the limited service time, we have an average of 15-20 minutes per consultation and because of this we are unable to provide the service that we would like to provide because you have to rush. We have full autonomy to schedule the return to service at another time, but sometimes in that moment, you have to resolve more things. The person sometimes wants to talk more, to vent, and for the time that we have for the service, we have to make sure we*

*adhere to the schedule. Sometimes I'm providing care and there is someone at my door knocking. And then we always schedule, we do not attend, we always schedule a follow-up consultation with this teenager. But it is very complicated because the ideal would be to have more time for mental health (P25, Nurse).*

*Another described their schedule: You have to see a person in 15 minutes. This is inhumane. So 15 minutes. And the UHS requires me to fill out a production sheet full of boxes for each patient that I have to write down in the physical record, and now it will become electronic. I mean, of those 15 minutes, five minutes is in bureaucracy, 5 minutes is physically examining the patient, 5 minutes is talking, 5 minutes to talk. And then when I have a mental health case that I already know is mental health, I know that I have to reserve two hours. So I have 25 or 20 minutes to talk. And then I get another appointment from another patient, one who may be around the corner and he tried to kill himself, so it's very sad (P2, GP).*

#### Lack of training and available mental health specialists

Relatedly, health care providers, predominantly at the BHU level, expressed a lack of training as a barrier within the provision of adolescent mental health care services. This adversely impacted their ability to respond to adolescents' mental health needs and manage workloads. It also illustrated that quality would not be possible to implement given this barrier to care.

Despite all participants acknowledging that training in adolescent mental health was important, the majority of health care providers (n=30) reported they had not received any prior training on adolescent mental health, while 15 health care providers (three from the BHU and 12 from the PCCca) stated they had received training in the past. Indeed, participants at the PCCca acknowledged that mental health providers at



the PCCca level were better trained and equipped at providing and responding to adolescents with mental health conditions compared to the primary care level (BHU).

Participants discussed how a lack of training left them feeling unprepared, not having the skills to communicate with adolescents while not being able to appropriately provide support and quality care to the adolescent in these low-resource and violent settings. They also expressed frustration, helplessness and insecurity.

One participant articulated how this lack of training negatively impacted the entire service: *It is an accumulation of people without purpose, without justification, without knowing what the material and methods are, without evaluating the impacts of the action with the participants and with the professionals who are performing it. And then this execution is hampered because the planning was not done, the professionals sometimes don't understand why they would form a group [for adolescents], what are the types of groups? And what impact that may or may not have* (P22, Nurse).

Similarly, participants at the BHU perceived the lack of mental health specialists as a barrier within the provision of adolescent mental health care. They were of the opinion that there needed to be greater training and expansion of the FHSN teams in the region. They expressed frustration at the limited hours the FHSN team (psychiatrists, psychologists, occupational therapists and social workers) spent at their facility and how they were unable to meet adolescents' mental health needs and demands.

As one health care provider articulated: *So today, for example, we are 11 teams in a unit that serves over 40,000 people. There are 3,000 people on my team, a little more than 3,000 people, and we have a multidisciplinary team only 3 days per week. So it's very difficult to make shared consultations with a psychologist, speech therapist or whatever the other professionals are, the social worker. So we end up doing a lot*

*of personal contact, face-to-face, text messaging. That sharing consultations, sharing care, sometimes it's something that's a little bit, I see this as a barrier, a great difficulty that could grow. And this multidisciplinary perspective is also where we fail a lot too due to unavailability (P9, GP).*

Relatedly, there was a lack of knowledge and awareness about mental health policies that target adolescents. Participants were asked if there were policies or protocols on adolescent mental health that they followed: 14 health care providers stated that they followed specific policies or protocols on adolescent mental health (5 health care providers from PCCca and 11 from BHU) while 28 providers stated that they did not follow any (6 PCCca and 22 BHU health care providers). Those that stated that they followed policies and protocols mentioned following institutional goals and primary and secondary health care protocols, nothing specific to adolescent mental health. Participants were asked if policies or protocols on adolescent mental health would be useful for them and of those that were asked, 15 health care providers (all from the BHU) stated that they would be useful (out of 45 health care providers).

Some health care providers analogised the lack of policies and protocols on adolescent mental health to neglect by the system and entire country.

*I think we still need to discuss health policies, as a whole for childhood and adolescence. I think we would do better, but it has this impact, which is the issue of the absence of the State itself, of effective public policy (P38, Social worker).*

*Unfortunately, there is no service for adolescents, this is what I tell you that we dry ice [from the original in Portuguese “exuga gelo” meaning to do pointless work]. I think there needs to be an investment in adolescent policy, aimed at educating them, guiding them, creating groups for them, to do activities that call them and we can bond, but it takes time... But unfortunately, the views are very punctual, administrations*

*change... solving that problem, that demand, not providing long-term care in which you form a citizen, where you reintegrate a real citizen, you let this adolescent go. And then when he is already on drugs, in adulthood or when he is already violent, assaulting people, or involved in crime, you want to bring him back. You've already lost a lot, you've lost value, you've lost training, you've lost structure, you've lost confidence. That's how I see it. I think they're very abandoned in this country (P12, GP).*

Although health care providers acknowledged that to improve services there needed to be specific policies and protocols on adolescent mental health, they also expressed hesitancy over its implementation. They worried that national-level policies and protocols would not represent the diverse city and local needs and lead to inflexible adolescent mental health treatment and therapeutic plans. Participants were of the opinion that each treatment and therapeutic plan should be tailored to each case.

As one participant stated: *We have a very diverse territory, so I don't know if a national standardisation would account for this diversity within each state. Each city has very different characteristics. Maybe within a city, we could have a discussion at a municipal forum about this, but something more restricted, I don't know. Because every 4 years the government changes. This sometimes becomes more of a political issue than a technical one. So I have doubts (P34, Psychiatrist).*

Ultimately, plans to implement quality in adolescent mental health services would remain elusive as services currently operate, due to the high demand, lack of prioritisation and the goals and priorities set by the UHS primary care mandate in terms of maternal and child health, elderly health, and NCDs.

## Stigma

Participants expressed stigmatising attitudes towards adolescents, contributing to neglect by the health system. Some participants blamed adolescents for not accessing or adhering to mental health care. They were of the opinion that adolescents were rebellious; lacked self-care; were not patient, or trusted and respected authority figures such as parents and health care providers. They also considered that adolescents made up excuses not to seek care. They expressed frustration at the difficulty of engaging adolescents in the service.

*As one health care provider articulated: As a teenager he is suspicious, as a teenager he tests you. The teenager wants to know how much you really are there for him or are you pretending to be there. And we don't have time in the units for that (P12, GP).*

### 6.2.3.2. Social and Environmental Context

Health care providers were of the opinion that quality mental health care was difficult to implement within the resource-limited and challenging contexts of São Paulo city. Participants perceived that, regardless of whether (or not) the health facility was implementing quality mental health services, the services were ineffective. This was attributed to the adolescent's exposure to social and environmental conflicts and risks within the family and community.

*As one participant expressed: I think that the effectiveness of the health service is greatly harmed because no matter how much you offer all of this quality that we are discussing, I think that when he returns to his environment in which he lives, and often the environment does not change, you realise that then you have the chronicity of certain conditions. Because you realise that for him to improve, other aspects of life need to improve, and they are not always related only to the health service. So for*

*sure, this most vulnerable teenager in mental health, even if he has access to quality health care, with the challenges and problems that he faces, I realise that this type of teenager will have a harder time evolving (P5, GP).*

At both the BHU and PCCca, parents and families were perceived as barriers to the uptake and utilisation of adolescent mental health care services. Participants reported that adolescents who experienced family conflict and did not have family support were less likely to access and engage in services compared to those with more supportive and involved families. Health care providers attributed this to limited education, social vulnerability, cultural norms and an intergenerational transmission of social disadvantage. Others attributed this to families having to work and a lack of time to care for their adolescent children.

One health care provider described it as: *If the family presents any type of resistance to the treatment, the violence they use towards this, is to abandon it [treatment for the adolescent]. Abandon, boycott, miss out on care, miss out on groups, they [the family] don't give us any news of the teenager. So it's a type of violence that they use in this sense, of somehow boycotting the therapeutic plan in some way (P32, Psychologist).*

Another participant at the PCCca described how society influenced the improvement of the adolescent's mental health: *The difficulty is the organisation of society today. The fundamental difficulty that we deal with: we receive a patient, provide very good care, full of insights, full of reflections to operate countless possibilities in that patient's life. But then he returns to his home, to the same context of vulnerability...(P32, Psychologist).*

Participants also touched on the influence of the drug cartels and having to work within these high-risk neighbourhoods. They felt that this was out of their control

and impacted their ability to provide mental health services, with some describing a fear of retaliation for the provision of services and concerns over their safety when making home visits and the provision of mental health services.

*Within a serious case that I see like this, look, there are a lot of social factors that we do not control, and that will affect the response to treatment. We're going to have to fight for everything to turn it into what it won't. So, the adolescent lives in a vulnerable area, can I get him out of there? No. I can't enter his territory today, because the cartels won't let us in. What will I do? Will I enter by force? No. So I'm not going today, but I'm going tomorrow. So I was late, I didn't provide the quality I needed to today, but I did it the way I could. So in this case, it's more important to do it the way it was (P35, Psychiatrist).*

According to participants, one of the consequences of living in these limited-resource and violent settings was the issue of adolescent substance abuse. They were of the opinion that adolescents were vulnerable to substance abuse due to the influence of the drug cartels within the community, however, they did not mention how adolescents could be potentially integral to the organisation of the drug cartel itself. Health care providers acknowledged that these cases were the least likely to seek and engage in services at the health facility.

*Teenagers with harmful and abusive drug use are a very difficult group to reach and care for at the BHU. I think, without a doubt, that it is the group with the greatest difficulty due to the condition of the disease itself but also because of the social issue and the types of movements they have access to within the community. (P5, GP)*

Despite acknowledging these social risks and the influence of the drug cartels in the community on quality of care, participants failed to identify ways in which to overcome these challenges. Some participants conceded an inability to understand

the adolescent's environment because they did not grow up or live in these challenging and resource-limited settings. This inability would adversely impact quality of care. The fear of retaliation and safety that health care providers described may have contributed to the lack of prevention and outreach services within the community and not being able to reach at-risk adolescents.

#### 6.2.4. Enablers to Services

Health care providers were asked about enablers to adolescent mental health services. These revolved around spontaneous demand and care approaches.

##### 6.2.4.1. Spontaneous Demand

FHS team members and PCCca providers were of the opinion that spontaneous demand, as an entry point to the mental health system, was a mechanism that enabled adolescents to actively seek mental health services, as well as, increase demand. They acknowledged that spontaneous demand meant that adolescents did not have to wait for an initial consultation to see the FHS team or the PCCca team (this did not apply to the FHSN team). To obtain an appointment at the BHU, FHS participants stated that adolescents had to arrive at the service early in the morning to attempt to schedule a morning appointment, or arrive at noon to schedule an afternoon appointment. At the same time, FHS team members at the BHU, as well as, PCCca health care providers reported that adolescents spontaneously sought services at their facilities (this did not apply to the FSHN team members).

As one health care provider stated: *Spontaneous demand happens and it works well. So maybe this is a facilitating factor because the patient doesn't have to wait for*

*an appointment. Sometimes it's [follow-up appointments] scheduled 3, 4, 5 months after the first contact... I think that this entry point is the easiest, this gateway to the system is the easiest.* (P14, GP).

#### 6.2.4.2. Approaches to Care

There were several approaches to care that participants recognised as facilitating the provision and quality of services. Participants were of the opinion that group therapy was an enabler to the provision of adolescent mental health services. At the BHU, the FHSN team organised group therapy. Group therapy involved activities, such as theatre and literature, and discussions about bullying, self-harm, mental health, sexuality, family conflict and their future plans. Participants considered that group therapy allowed adolescents an opportunity to interact and connect with others their age, facing similar challenges. Health care providers at the PCCca described these groups as helping treatment adherence and continuity of care.

As one health care provider stated: *There are activities there... Bullying, sexuality, family conflict, so that through the group, through activities – this is a way professionals can reach these adolescents. You end up addressing these issues and working with them on the issues that arise. So self-mutilation, bullying, sexuality, family conflict, they end up getting a lot and then through activities there, we have a lot of artistic activity, we work with them on these issues* (P44, Occupational Therapist).

Participants from the PCCca recognised that the organisation of mental health services involved using approaches that increased the adolescent's continuity of care and improved their mental health. This involved working with the adolescent to develop their therapeutic plan, while creating a safe, non-judgmental environment. They



attributed this to the opportunities they had for continuing education and training courses, to meet the adolescent's mental health needs and provide quality care.

As one health care provider at the PCCca stated: *So the psychologist's job is to build together with the patient, within the uniqueness of each patient's case and potential opportunities, a plan that ends or alleviates their suffering, considering each patient's personality, environment and the support of the network. So the main role of the psychologist, my main role within the institution is this. Looking for uniqueness, trying to build a therapeutic project for each specific patient, together with the network, together with professionals within the PCC (P32, Psychologist).*

Due to the COVID-19 pandemic, telemedicine became a tool by which health care providers at the BHU and PCCca could reach adolescents with mental health services. Participants reported that this tool was quite successful among adolescents, in accessing and continuing mental health care. They perceived that adolescents felt more comfortable through telecommunication, such as WhatsApp and social media, and that it could expand their reach to more adolescents within the community.

*But I think telemedicine, teenagers are very tuned into social media, WhatsApp, so I think it's a way for us to be able to access this segment of the population with video, with reading material, with podcasts. In other words, there are many things that I think can and should be explored (P9, GP).*

### 6.3. Discussion

Health care providers' definition and perception of quality in adolescent mental health services in limited-resource and violent settings of São Paulo city, Brazil were explored in this study. Overall, health care providers' knowledge, values, attitudes and practices in the delivery of mental health services to adolescents at the BHU and

PCCca were influenced by the limited-resource and challenging contexts within which they worked. Despite the UHS' principles of universality, comprehensiveness and equity (449), as well as, the national level Guidelines on the Provision of Child and Adolescent Psychosocial Care (420) and Lines of Health Care for Adolescents and Youth Health in São Paulo (435), health care providers perceived that adolescents remained largely neglected within and outside the health system. There were several acknowledged challenges within the provision of health services, highlighting how quality in adolescent mental health care was influenced by interconnected factors across services and sectors. Furthermore, there were perceived inequalities in the provision of adolescent mental health care attributed to the way in which services were delivered at the primary and secondary care levels. These findings illustrate that, without targeted support from the health system and intersectoral collaboration, it would be impossible for health care providers to implement comprehensive, quality adolescent mental health services as well as the national and state level guidelines by the Ministry of Health.

Quality is a multi-faceted concept (328,370) that includes dimensions of effectiveness, safety, person-centeredness, timeliness, equity, efficiency (328,370) and integrated care (328). To increase adolescents' use of health services, improve health outcomes, ensure a minimum level of quality in primary and referral level facilities and fulfil adolescents' right to health care, the WHO (2015) defined quality in adolescent health care according to eight standards. These include health literacy, community support, appropriate package of services, provider competencies, facility characteristics, equity and non-discrimination, data and quality improvement, and adolescent participation (359). Despite the importance of these quality dimensions and standards, the larger service challenges identified in this study (including the lack of

human and financial resources, and the UHS primary care mandate), limited and adversely affected the implementation of quality in adolescent mental health care.

### 6.3.1. Social Determinants Perspective

Results revealed that there was no standard definition of quality provided by health care providers at the primary or secondary level facilities. This is consistent with prior research, illustrating no prevailing consensus of quality in health care (386) and how it could be achieved in these settings. Indeed, quality was idealised by health care providers, with participants adopting a largely social determinants perspective in their definitions of quality adolescent mental health care. It is not surprising that health care providers defined quality in this manner, as historically this approach has been promoted throughout the region (438), informing the development of the UHS in the 1980s (437). It also has been promoted in national- and state-level policies and guidelines (420,435,440).

That said, several factors must be considered when examining a social determinants perspective within current health services. Firstly, employing a social determinants approach raises questions about the role of the health care provider and how the provider would respond to adolescent mental health cases at the individual level, if participants believed that changes needed to be made at the societal level, to improve adolescent mental health. It was unclear how health care providers would be involved (if at all) in implementing these activities outside of the facility. Second, health care providers failed to describe how the social determinants approach would be implemented within these limited-resource and violent settings. If the ideal definition of quality is to implement a social determinants of mental health approach, as described by participants, it would be important to understand how providers envision

the implementation of this approach within these limited-resource and violent settings. Third, it would also be important to examine health care providers' acknowledgement that they could not understand the environments within which the adolescents lived because they themselves do not live within the limited-resource and violent contexts. This creates social distance between the health care provider and adolescent service user, and is problematic as it could influence the provision of quality care, particularly among those who lack training and have no clear protocols or organised flows. Indeed, evidence has shown that social distance impacts communication, the provider-patient relationship and ultimately quality of care (552–556). Adolescent service users' value being respected, listened to and actively communicating with the health care provider (529). This could negatively impact mental health outcomes, as previous studies have shown that when adolescents have not experienced patient-centred communication with their provider, they were less likely to adhere to their treatment and experience a significant reduction in their mental health problems compared to those that experienced patient-centred communication (499,507). Given these considerations, adolescent mental health needs would remain largely unaddressed by these proposed societal changes, as current services were provided at the individual and family levels. Ultimately, implementing these wide-scale social changes would require a major reform of systems and services that involve human and financial resources that currently do not exist within these low-resource and violent settings.

Interventions that have targeted reduction of violence in communities have showed a reduction in conduct disorder among adolescents (52). Further, a school-based bullying prevention programme among children showed a reduction in disruptive behaviour problems (561). However, greater research is needed to investigate intersectoral interventions, particularly those that address social and

contextual determinants, including community violence and poverty on adolescent mental health (223). Importantly, interventions that target social and individual risks and stressors should not replace mental health services. These services should operate intersectorally and in collaboration, as there are adolescents at high risk of developing mental health conditions, or those with evolving or mild manifestations, that would need specialised care (223,261).

### 6.3.2. Person-centred Care

Quality was also defined in terms of service organisation aspects, such as person-centeredness. According to the WHO (2007) (557), person-centred care incorporates the principles of equity, participation, non-discrimination, human rights, empowerment and access and equal relationships within the health system. It encourages comprehensive care and communication between health providers and service users, who actively participate in their care; accountable, evidence-based and responsive health services; and supportive health service environments. A person-centred approach increases mental health literacy and participation among adolescents, families and within communities; builds capacity between health care providers and adolescents to ensure shared decision-making of comprehensive and quality care; promotes self-care; increases intersectoral support and local champions of care; strengthens all levels of care (including the primary health care level) so that they are effective, efficient, based on evidence and multidisciplinary, among others (557). A prior study on patient-centred care (measured as a positive approach to diagnosis and treatment, communication, having a personal relationship, partnership/shared decision-making, health promotion and interest in the effect on life) showed that young people (14-25 years) preferred this approach, engaging actively in

their care (558). However, it should be noted that this care approach remains largely unexplored among adolescents (559). The provision of person-centred care within current services in these low-resource and violent settings of São Paulo city would be impossible to deliver, as adolescents are neglected by the system, and health care providers' knowledge of how to respond to adolescents' mental health needs remains limited.

### 6.3.3. Neglect of the Adolescent by the Health System

Challenges were identified at the system- and individual- levels by health care providers and acknowledged as adversely impacting quality of adolescent mental health care. One of these challenges was neglect of the adolescent at various levels within the health system. Interestingly, neglect is a concept that encompasses multiple dimensions, yet remains unexplored and lacks conceptualisation within adolescent mental health services (560) requiring investment and research in this domain. Reader and colleagues (2013) conceptualised patient neglect as procedural (failures within health system procedures and standards) and caring (patients' perspectives of uncaring health care provider attitudes and behaviours). They also identified distal (structural and organisational factors) and proximal (workloads and health care provider behaviour) causes of neglect (561).

Neglect at the system-level included adolescents lack of prioritisation due to the UHS' primary care mandate at the BHU level. This resulted in a lack of human and financial resources earmarked for adolescent mental health services, and contributed to a lack of clear service protocols and organisational flows; strategies, approaches, targeted actions for adolescents; infrastructure; training and continuing education opportunities; and prevention efforts at the BHU level. Teixeira and colleagues (2017)

found similar results: among FHS teams at a BHU in Rio de Janeiro, there were a lack of mental health strategies available and implemented for adolescents, and intersectoral collaboration (429). This could be attributed to (i) a lack of training on adolescent mental health; (ii) limited consultation time; and (iii) a lack of prioritising adolescent mental health care in health care services (314). Ultimately, health care providers were hesitant to diagnose adolescents, stating that they were unsure of how to classify them (429).

Interestingly, PCCca health care providers in this study reported that adolescent friendly approaches were an enabler to the provision of adolescent mental health services. This finding highlights potential disparities in resources for adolescents at the primary care level compared to the secondary level; and could contribute to inequalities, uneven care and poorer mental health outcomes for adolescents who receive services at the BHU but do not meet eligibility criteria for the PCCca. A lack of, or limited, resources are associated with health inequities and poorer adolescent mental health outcomes in LMICs (389,493,548,562).

Another source of system-level neglect was the acknowledged high demand and low supply of health care providers. This meant that adolescent mental health needs were sacrificed to meet primary health care priorities. This is consistent with previous research in the UK, which showed a limited availability of child and adolescent mental health service provision, yet a high demand for specialist services (563). One potential associated consequence of this is that the stress associated with a demanding job could lead to health care provider burnout and health service performance issues, including poor quality care (564–567). Without increasing the number of health care providers and decreasing the patient load per team, it would be impossible for health

care providers to respond to adolescent mental health needs and implement quality of care as services currently operate.

Consistent with previous research (568), health care providers stated that a trained, multidisciplinary workforce was critical to the provision of quality mental health care, yet participants at the BHU faced a lack of trained and specialised health care providers. Participants also considered that they didn't have the capacity to appropriately respond to these cases. As such, ensuring a trained, multidisciplinary workforce for quality of adolescent mental health care would be impossible to realise within current services. This is concerning as it leads to delayed diagnosis and treatment for adolescents, and is in line with prior research (9,324,331,333). Meanwhile, health care providers at the PCCca level perceived training as a facilitator to the provision of services. This illustrates inequalities in the provision of care for adolescents at the primary and secondary care level.

Relatedly, health care providers reported that by the time the adolescent initiated mental health services, they were already experiencing an advanced mental health condition, or in full mental health crisis mode. This could be attributed to: (i) poor access mechanisms; (ii) the lack of prioritisation of adolescents in health services at the BHU level due to the UHS' primary care mandate; (iii) evolving or mild conditions or mental health symptoms wherein the adolescent tried to access services in the past but was turned away due to a lack of trained staff; (iv) the perceived lack of prevention services in the region and early detection of cases; and (v) poor referral mechanisms. This is critical as a delay in adolescent mental health diagnosis and treatment is associated with the potential for relapse, poorer long-term mental health outcomes and consumption of greater resources (243). Results from a study that assessed clinical records of adolescents (16-18 years) presenting at an Emergency Department



with mental health crises in Ireland showed similar challenges, with adolescents unable to access specialised mental health services due to underfunding, restricted opening hours and poor coordination between service levels (569). This calls into question how BHU health care providers respond to adolescents when they initiate services in crisis mode. Prior research has showed that a lack of trained health care providers was associated with poor care decision-making and treatment delays (570,571). In an UK CAMHS, general practitioners reported experiencing difficulty in identifying mental health symptoms among young people due to a lack of training on the topic (570).

Despite the existence of the UHS Psychosocial Care for Children and Adolescent guidelines (420) and the Lines of Health Care for Adolescents and Youth for the Unified Health System in the State of São Paulo (435), health care providers were unaware of policies and protocols specifically addressing adolescent mental health within services. This means that health care providers, at the local level, were unaware of guidelines passed at the national and state level. Among those that did state there were policies and protocols on adolescent mental health, they failed to mention specific policies and guidelines; rather, they referred to general goals and priorities within the services, without mentioning action lines specific to adolescent mental health. This is supported by prior research in LMICs, which has shown that adolescent mental health service legislation, policies and protocols are rare (19,350). Importantly, an absence of legislation, policies and protocols leads to a lack of defining mental health services, strategies, and appropriate care pathways for community-based interventions, prevention, early identification and treatment (19,89,320,338,340,354,572). Yet, some health care providers were hesitant to implement specific legislation and policies due to potential inflexibility in the provision

of care. This is supported by evidence from a systematic review on patient-centred care for children and adolescents (529), which showed health care providers and patients viewing policies and regulations as barriers to the provision of patient-centred care (529,573,574). Within the current services, there appears to be a need for greater clarity and support at various levels within the health system to disseminate knowledge about and implement these guidelines and policies.

Participants valued intersectoral collaboration, yet narratives reported experiencing unstable network support. Health care providers, particularly, at the BHU level, voiced concern over not knowing where to refer adolescents within the network. This aligns with previous research, with BHU health care providers reporting limited knowledge of the services operating in the region and resources available to adolescents (429). This could be attributed to a lack of guidance on the organisation and supply of adolescent mental health care, as well as a lack of partnership and continuous dialogue among these service levels and sectors to effectively respond to the mental health needs of adolescents in the region (429,456). Prior research reported that services within the intersectoral network operated in isolation of each other, conducting individual processes of care, limiting clinical improvement and potential for social change (455). Overcoming these barriers would require addressing the infrastructure, training and human resources within different sectors (575). Research in Brazil on adolescents' (10-19 years of age) support networks and health care needs showed that adolescents perceived intersectoral collaboration between health, education and social sectors as limited (576). Contributing to this was a lack of financial and human resources between the different health service levels in Brazil (429,577,578). Similar results were found in the UK, with referrals from GPs three

times more likely to be rejected by secondary level mental health services than all other sources combined (570).

Some health care providers acknowledged having to develop their own informal network of care to support the adolescent's therapeutic plan. This illustrates the lack of prioritisation of adolescents and collective effort towards improving adolescent mental health intersectorally. It also calls into question how a social determinants approach would be implemented when health care providers experience challenges with formal network support. Ensuring proper referral networks and intersectoral support would help providers handle patient load and time constraints (579).

Challenges at the individual-level reported by health care providers included a lack of consultation time, a lack of knowledge on how to respond to adolescent cases and fear of retaliation. This is related to the system level challenges, driven by the lack of prioritisation of adolescents and human and financial resources allocated to adolescent mental health services. It also contributed to health care providers' stigmatising attitudes about adolescents. This could be due to the interaction between interpersonal and intraindividual stigma, which can lead adolescents to not seek and continue care for mental health conditions. As such, implementing quality in adolescent mental health care was impossible to realise due to the stigmatising attitudes that health care providers expressed about adolescents.

Participants described quality of care in terms of having ample consultation time. There is scant evidence on consultation time and quality of care. The limited evidence that is available has shown improvements in quality with longer consultation time (585–587). Studies have also shown longer consultation times were associated with more accurate diagnoses of mental health problems (586) and the promotion of preventive care (587). Short consultation times have been shown to be a barrier to

person-centred care (588–590), with patients who sought mental health care valuing longer consultation times in order to talk through their problems (590). Further research is needed to understand the relationship between quality of care and consultation time.

Surprisingly, health care providers failed to mention the importance of evidence-based adolescent mental health care in their narratives. This adds to how adolescents were not prioritised within the system, with health care providers focussing on providing acute care to priority population groups. It also aligns with health care provider narratives (at both the primary and secondary level) about feeling overwhelmed with work, not having enough time to provide care to patients. This could include not having time to review the literature on adolescent mental health conditions and interventions. Future implementation research at the local level could help identify and address ways to overcome these barriers.

Potential pathways to address neglect of the adolescent by the health system would require greater investment of financial resources and trained health care providers earmarked for adolescent mental health at the primary level. Further, there would need to be greater research and evidence generated at the local level on adolescents' and families' characteristics as well as their expectation of mental health care. This can be done through implementation research (519). In addition, there would need to be greater communication between health care providers, the adolescent and the family on the provision of care; improved coordination of care through the identification of responsibilities and referral mechanisms; as well as monitoring and evaluation of the processes and outcomes of adolescent mental health services (591).

#### 6.3.4. Social and Environmental Context

At the same time, health care providers acknowledged that adolescents experienced neglect outside of the health system, within families and the community. Indeed, participants considered that adolescents who lacked parental support were less likely to seek and use services compared to those with parental support, resulting in inequalities in access and use. UHS guidelines on Comprehensive Health Care for Children, Adolescents and their Families in Situations of Violence (2010) highlight the important role that health care providers play in identifying and responding to cases of family conflict (580). However, due to a current lack of resources and overburdened schedules, this would be challenging for providers to address within the system. Indeed, participants failed to identify clear protocols or intra- and inter-organised flows to respond to cases of family conflict. Prior literature (468) on parental support showed that families functioned as key agents in the adolescent's access to care. This included family involvement, not only in treatment initiation, but also at different points along the pathway to care, such as the first source of help, providing recommendations on where to seek help, initiating contact with health services and as the main contact for mental health services. Family involvement in access to adolescent mental health services also led to a shorter delay in receiving care (468). In contrast, a prior systematic review and meta-analysis showed that family attitudes and beliefs about mental health were barriers to care for young people. Reasons as to why adolescents were afraid of involving their family included fear of not only angering their family for seeking mental health services, but also fear of being taken away from them (314).

Health care providers perceived that adolescents with substance abuse issues were the least likely to access care compared to other groups at both the BHU and PCCca. This is consistent with previous research from the US (549) as adolescents with substance use disorders were less likely to access treatment compared to those

with other mental health problems (549). It has been argued that adolescents with severe mental health conditions, including those with substance abuse issues, may have considerable difficulty in the help-seeking process. This has been attributed to fear of stigma, challenges in recognising the need for mental health services, social isolation and exposure to risks in the environment, including the ease of access to substances and contact with the drug cartels (326,581). The UHS' Child and Adolescent Psychosocial Care guidelines recognised the challenge that substance abuse poses to mental health services, recommending that health care providers develop and offer tailored intersectoral therapeutic projects more suitable to adolescents experiencing substance abuse issues (420). It would be difficult for the services, as they currently operate, to address this issue due to a lack of resources, lack of organised flows and protocols and the current primary care mandate.

#### 6.3.5. Spontaneous Demand

Health care providers considered spontaneous demand as an enabler to mental health services for adolescents. Yet, participants failed to recognise inequalities in access derived from this self-referral mechanism. Firstly, spontaneous demand is associated with mental health literacy. Prior research has shown that individuals with some health literacy were more likely to access care, as opposed to those with limited or no health literacy (582). As such, this could create a selection bias in those accessing services, in that adolescents with limited or no mental health literacy may be unaware of these services and subsequently not access them. Secondly, this mechanism is based on restricted opening hours at the BHU level. To obtain an appointment, health care providers stated that adolescents had to arrive at the service early in the morning to attempt to schedule a morning appointment, or arrive at noon

to schedule an afternoon appointment. This could potentially prevent some adolescents from accessing care as these hours, and the time it takes to wait and make an appointment, may conflict with their schedule. A study in Recife, Brazil found that those spontaneously demanding care at the primary health facility had to form a queue in the middle of the night to spontaneously access services the next day (583). Thirdly, participants noted that the historical priorities of the UHS at the BHU level meant that some population groups (mothers, children and older populations) were prioritised over adolescents. These groups could potentially have greater priority for same-day appointments, as it was widely acknowledged that adolescents were not prioritised in the service. It has been argued that due to this access mechanism, health services are organised and structured to meet their own demand and not the health care needs of its population. As such, this self-referral mechanism could impact adolescents' use and trust of the service (584,585).

At the same time, health care providers at both the BHU and PCCca reported that adolescents spontaneously sought services at their facilities. This indicates that the entry to the mental health system is unclear. Health care providers failed to recognise that this mechanism could lead to confusion for adolescents and their families, contributing to treatment delays and adolescents falling through the cracks. In a systematic review on pathways to care, evidence showed that current mental health care pathways for young people were complex and involved multiple contacts. Resultantly, this contributes to delayed treatment and potential long-term poorer mental health outcomes (468).

In a prevention model, spontaneous demand for adolescent mental health would involve mental health promotion and prevention activities, as well as stigma prevention activities within the community and in schools. This would create greater mental health

literacy among adolescents and families. It would also hopefully create an environment within which adolescents would feel empowered and have the agency to proactively seek services for their mental health and wellbeing. It would involve providing easy access for adolescents who are seeking services at the BHU and PCCca (599) so that adolescents do not have to experience long queues.

#### 6.3.6. Telemental Health

Health care providers perceived telemedicine as an enabler and an approach to improving adolescent mental health services. Prior research has showed that the internet has increased access to child and adolescent mental health services to deliver psychosocial interventions (320,350,354). Also, this tool has become popular and has led to increased coverage of mental health services (586). This is particularly important in low-resource and violent settings where they face limited, trained health care providers and financial resources (19). It has also been shown to be flexible, cost- and time-effective (587) and efficient in managing child and adolescent mental health conditions (588). Evidence has shown that it leads to improved patient satisfaction and is effective in evaluating and analysing mental health conditions (363).

#### 6.4. Conclusion

To the author's knowledge, this is the first study that has attempted to investigate health care providers' perception of quality in adolescent mental health services in Brazil and in low-resource and violent settings. It also adds to the limited evidence base on barriers and enablers of mental health service provision within these settings. Determining how health care providers define quality is critical because it helps to identify local conceptualisations and barriers that hinder its implementation. It



also helps to reduce treatment gaps. Based on health care providers' perceptions, a social determinants of health approach, in combination with a trained workforce and person-centred care, is key to addressing quality in adolescent mental health services.

## Chapter 7. DISCUSSION

The following chapter first provides a summary of the evidence described in this thesis and how it relates to the overall aim of the PhD. It is followed by a summary of the studies conducted and included in the thesis, potential interventions, the contribution of this PhD to the literature, future directions and the overall limitations. Finally, conclusions for this doctoral thesis are provided.

### 7.1. Summary of Thesis Findings

#### 7.1.1. As they relate to the overall aim of the thesis

The primary aim of this mixed methods study was to investigate adolescent mental health and how mental health services are responding to the needs of this population group in São Paulo city, Brazil. Based on the evidence from this doctoral thesis, the results showed that adolescents experience poor mental health conditions in São Paulo city, particularly those exposed to violence and those with limited social support from parents, friends and teachers. At the same time, adolescents remained neglected by the health system. This was attributed to under-resourced and overburdened services/systems and a lack of health care provider capacity to respond to adolescent mental health needs. It was also attributed to the historical prioritisation of other population groups and stigmatising attitudes, contributing to adolescents' unmet mental health needs in these settings. Despite an acknowledgement by the majority of health care providers that quality within adolescent mental health care should be a priority, providers perceived that the implementation of their definitions of quality was impossible to realise. This was due to the perceived health service barriers

and how they define quality, which comprised broader interventions beyond the physical boundaries of the health care facility, addressing the social, environmental and economic realities within which the adolescent lived and was exposed to on a daily basis.

#### 7.1.2. As they relate to the chapters

The systematic literature review presented in **Chapter 4** investigated quality in adolescent mental health service provision. The study identified 20 articles that focussed on aspects of the WHO's Global Standards (2015) (359) of adolescent mental health literacy, appropriate package of services and provider competencies. Most studies were from high-income countries, with one study from a low-income country. There was a lack of formal conceptualisation of quality (similar to the results from the health care provider narratives in **Chapter 6**), as well as limited evidence on quality measures in adolescent mental health services (as conforms to the WHO Global Standards) (359). There were limited findings on adolescent mental health literacy. In low-resource contexts, this is particularly important as mental health literacy plays a role in ensuring that services are responsible and held to account, for providing effective, efficient and quality care to adolescents (370). There was some evidence on package of services, with the bond and relationship between the health care provider and adolescent shown to lead to positive outcomes (526,527) (similar to findings in **Chapter 6**). The systematic review also showed the importance of an educated and trained workforce to respond to adolescent mental health needs in terms of confidence (501), collaboration (502) and the use of evidence-based practice (512-516). These aspects of quality could be adversely affected in low-resource settings due to underfunded and overburdened systems; health care providers not having the time to

provide quality mental health care to adolescents; the historical prioritisation of other population groups (mothers, children, elderly and those with NCDs); the traditional biomedical model of health care provision; and the social and economic realities of the territories which adversely affect the provision of mental health care.

Findings from the secondary data analysis of SP-PROSO on social determinants of mental health, individual risk and protective factors was presented in **Chapter 5**. Results showed that gender moderated the association between violence exposure and internalising symptoms among secondary students across schools in São Paulo city, Brazil. Female students exposed to serious victimisation, being bullied once per week, school violence and community violence had significantly higher internalising symptoms compared to boys. However, social support was shown not to moderate the association between violence exposure and internalising symptoms. Across schools, being bullied once per week, school violence, and community violence were associated with an increase in internalising symptoms. Social support was associated with a decrease in internalising symptoms across schools. Based on these findings, the promotion of social support interventions in low-resource settings could be a feasible option to prevent and improve adolescent mental health outcomes.

In examining the stress-buffering model (237) in **Chapter 5**, in light of the PhD findings, sources of social support did not moderate the association between exposure to violence and internalising symptoms among adolescent students across São Paulo city. Given the varied environments within which the adolescent interacts and their intersectoral needs, perhaps an extended version of this model could be developed to include support from health and intersectoral services. Inherent within this would be quality, as it plays a role in adolescents seeking, receiving and continuing mental health care and support (368).

In a meta-critique of the policies and services theorised in Chapter 2 and then practiced in Chapters 5 and 6 in São Paulo city, it appears there is a lack of implementation of these policies and guidelines within resource-limited contexts at the local level. As such, there currently is a lack of utility of these policies and guidelines, and consequently a lack of understanding about the reach and quality of the services and policies.

One way to overcome this gap is through the use of implementation research, including implementation science methodology (519). This approach has not been utilised within the resource limited settings of São Paulo city. Implementation research ensures that adolescent mental health care interventions (such as policies, programmes or practices) improve mental health outcomes. Policy implementation research is useful as it identifies how mental health services are responding and adapting to these mental health policies and guidelines. It also identifies how these policies and guidelines are shaping mental health systems (520). This is achieved through an iterative, mixed methods approach, using co-production methods to develop, test and refine theories and strategies of how the policy intervention can be enhanced within these limited-resource and complex contexts (603). Co-production involves the active participation of adolescents, families, service providers, key stakeholders and policymakers throughout the entirety of the implementation research process to ensure local ownership, relevance, adoption and sustainability of the policy intervention (519,520). Implementation science methodology, within implementation research, assesses the effectiveness of the policy implementation strategies on outcomes. Through the use of theories, models and frameworks, implementation science methodology monitors and evaluates the policy intervention implementation to identify negative consequences, whether goals are being met and if processes need

to change. This is useful for key stakeholders, decision- and policy-makers, to refine the policy intervention and better respond to process changes (520). Using policy implementation research in limited-resource settings of São Paulo city would be helpful to adapt the current policies and guidelines to the local context, and test and refine these policies to ensure sustainability, relevance, local ownership and the improvement of adolescent mental health.

Results from semi-structured interviews with health care providers working in low-resource and violent settings in São Paulo city (**Chapter 6**) showed no consistent definition of quality within adolescent mental health services. Quality was defined as addressing the social determinants; this involved intersectoral collaboration and outreach services, wherein the adolescent's social, environmental and economic realities would be targeted to improve the adolescent's mental health. Definitions of quality also involved aspects of service organisation, including trained and multidisciplinary workforce and person-centred care. These definitions of quality were idealistic and impossible to realise within these low-resource and violent settings due to overburdened and underfunded services, as well as limited health care provider capacity to respond to adolescents' mental health needs; all of which contributed towards the neglect of the adolescent by the health system. At the same time, health care providers' stigmatising attitudes towards adolescents, as well as the adolescent's social and environmental contexts (family conflict, organised crime) were identified as barriers to the provision of care. Telemental health was promoted as a promising avenue for the provision of adolescent mental health services.

Relatedly, health care providers expressed limited knowledge of UHS policies and guidelines on adolescent mental health in the region, illustrating how high-level policies and protocols had not reached the local, community level. This could be

attributed to a top-down approach, as well as the limited resources at the local level and lack of prioritisation of adolescent mental health throughout the system. Although policies and guidelines on adolescent mental health care were welcomed, there was hesitancy over their development and implementation for fear of inflexibility in the approach to adolescent mental health cases.

Similarly, results from the thesis illustrate the barriers and enablers to adolescent mental health care service provision in low-resource and violent settings. Adolescents, within these contexts, experience an axis of mental health vulnerability, which adversely influences their access to, and use of, mental health services, resulting in inequalities within adolescent mental health. The axis of vulnerability includes interacting social, environmental and economic realities, including poverty, exposure to violence and organised crime; limited family support; a lack of prioritisation of their needs by health services due to financial and human resource constraints; a lack of screening tools available to identify adolescents with mental health symptoms and conditions; unstable intersectoral collaboration; and stigmatising attitudes from health care providers.

In light of the conceptual model on adolescent mental health needs and actions (273), the findings from the thesis illustrate the cultural and contextual factors that influence the development of adolescent mental health symptoms and conditions within limited-resource and violent settings of São Paulo city. Adolescents, within these settings, are exposed to poverty, violence, organised crime and limited social support, increasing their mental health needs and developing internalising symptoms and mental health conditions. They also experience substance abuse issues. Mental health actions, both globally and within these settings, do not adequately respond to adolescent mental health needs. For adolescents with mental health symptoms or

conditions, who access the health system at the primary health care level, services were provided in an ad-hoc manner with no organised flow or structure. Services also did not provide quality of care, based on health care provider definitions. Wherein adolescents required intersectoral support (attributed to their social and environmental realities, such as family conflict or violence), referrals from the primary health care level and linked up care were unstable. From the health care provider narratives, a lack of adolescent mental health financial and human resources and a lack of prioritisation of adolescents contributed to neglect of the adolescent by the health system.

Although the conceptual model (255) identifies the important roles that social determinants and individual risk factors play on adolescent mental health, there is a need to incorporate interpersonal relationships and social support within the model. Findings from the thesis showed that social support and interpersonal relationships influence adolescent mental health. As such, perhaps the conceptual model could be refined to look more like cogs in a wheel, wherein the adolescent's mental health is influenced by interpersonal relationships (family, peers and teachers); individual mental health risks and protective factors; and the social determinants of mental health, which include poverty, violence and organised crime. It would also include cogs that address actions that influence the adolescent's mental health. This would include structural actions such as intersectoral policies, legislation and adolescent mental health financing. Community intersectoral actions that are implemented in schools, religious institutions and sport, as well as the drug cartels that control these communities would be included. Mental health services would include services implemented through the contexts that adolescents come in contact with in these communities (primary health care, religious institutions, schools etc).



Overall findings on the context and quality of mental health service provision from the thesis can be interpreted in light of the WHO Global Standards (359) and the measurable characteristics of quality (effectiveness, safety, patient-centeredness, timeliness, equity, efficiency and integration of care) as defined by Kruk et al (2018) (370) and WHO et al (2018) (328). There was limited global evidence on the use of the WHO Global Standards (359) in adolescent mental health services. Health care providers at the BHU and PCCca in São Paulo city touched on aspects applicable to appropriate package of services, health care provider competencies and facility characteristics (359). Regarding the measurable characteristics of quality (370), the findings of the thesis (**Chapters 4 & 6**) highlighted several barriers within adolescent mental health services that could adversely influence these characteristics. The current health system priorities and financial constraints, as well as the social, environmental and economic realities (**Chapters 5&6**), could adversely influence the effectiveness and safety of adolescent mental health services. Health care providers did mention aspects of patient-centredness when providing care to adolescents, however, it was unclear how (and if) it was being implemented on a daily basis. Although FHS and PCCca team members (not FHSN teams) believed that the provision of care was timely due to spontaneous demand, several potential barriers to this mechanism need to be explored (**Chapter 6**). Also, the amount of time dedicated to each adolescent consultation was restricted by competing priorities and the historical mandate of the UHS. Inequalities in mental health services were also highlighted within the thesis, with health care providers reporting that adolescents who experienced limited family support, as well as those with substance abuse issues, were the least likely to access and continue care. Based upon the narratives in **Chapter 6**, it was also shown that mental health services were inefficient in responding

to adolescent mental health needs. Finally, although the BHU and PCCca tried to integrate care, health care providers reported experiencing unstable intersectoral network support.

## 7.2. Adolescent Co-Production and Voice

Adolescent co-production, whereby adolescents (service users, those in the community and with multiple intersectionalities) engage in an equal, collaborative and reciprocal partnership with families, service providers and other key stakeholders, to design, implement, evaluate and refine services is critical for meeting their mental health needs (604). It facilitates adolescent ownership and buy-in, relevance and the sustainability of services. It also empowers adolescents and helps build their skills, social trust and self-efficacy (605).

Within the limited resource settings of this thesis, adolescent co-production could involve adapting the McCain Centre's Youth Engagement Model, an evidence-informed research strategy (605), for service delivery. The Model provides adolescents the flexibility to be involved as much as they want in a project and includes: adolescent participation (as research participants); consultation (as advisors on projects); partnership (co-production) and adolescent-led (adolescents leading the project themselves). It promotes the principles of transparency, reciprocal learning, mutual respect, flexibility, mentorship and authentic decision-making and aims to enhance adolescent skill development, empowerment and social engagement (605).

For services in Sao Paulo city, engaging adolescents in co-production would involve reaching service users and adolescents in the community (605). This could include partnering with schools and local adolescent-serving agencies, as well as distributing flyers within these settings or on social media. It could also involve training

families, service providers and key stakeholders on how to work best with adolescents, ensuring confidentiality and safety; identifying additional supports needed for adolescents involved in service co-production; and the potential use of a trauma-informed approach, given the experiences of youth within these settings. Once adolescents are involved in co-production, it would be important to provide them training opportunities to help support their role and responsibilities in the process (605).

Through implementation research, adolescents would be involved across the entirety of the service delivery design, implementation and evaluation. Adolescents would help co-produce the service design; data collection methods and tools; the interventions and theories on service delivery; the initial programme theory and implementation strategies to be piloted, refined, implemented and evaluated; data analysis; and knowledge mobilisation (519).

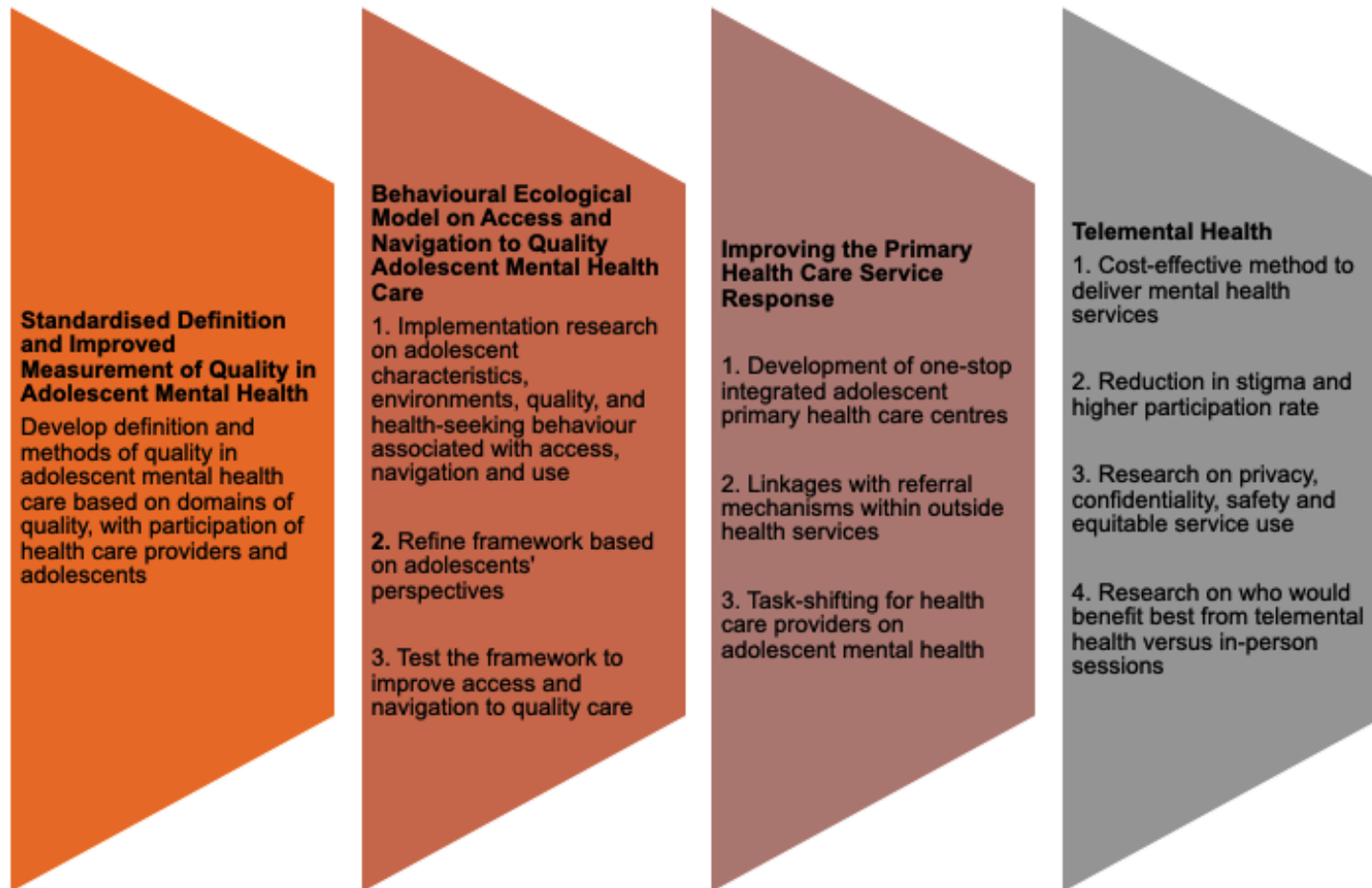
Similar to adolescent co-production, the adolescent voice has not been included within the existing service framework. Barriers to why the adolescent voice has not been included are likely attributable to the findings from **Chapter 6**: a lack of prioritisation and neglect of this cohort within the health system and stigmatising attitudes by health care providers, among others. Given these barriers (**Chapter 6**), this illustrates the importance of including the adolescent voice in the development of mental health services to ensure that they are relevant and meet their needs. In practice, including adolescents within service plans and delivery would involve engaging adolescent service users and adolescents in the community to co-produce services and delivery plans that meet their needs. This would involve developing an Adolescent Advisory Board. It would also involve holding focus group discussions and conducting semi-structured interviews with adolescent service users and adolescents

in the community to define the services that they want, the data collection tools to use in implementation, defining the implementation strategies to use within the services, and evaluation of these services and to provide continual feedback (519).

### 7.3. Potential Interventions

There are several potential interventions from the evidence generated from this doctoral thesis. The following sections highlight these interventions and how they can lead to meeting adolescent mental health needs and improvements in adolescent mental health services and adolescent mental health outcomes, as visualised in figure 8.

Figure 8. Visual Representation of Potential Interventions



### 7.3.1. Standardised Definition and Improved Measurement of Quality in Adolescent Mental Health Services

**Chapters 4 and 6** highlighted the lack of a standardised definition and methods to measure quality in adolescent mental health services. Defining quality and methods to measure quality in adolescent mental health care are important as it contributes to adolescents seeking, receiving and continuing care (368). At the same time, methods for measuring quality should be feasible and adaptable to various contexts (urban, rural). Achieving this would ensure comparability across studies, a greater understanding of quality in adolescent mental healthcare services and the identification of gaps in knowledge.

The aim of future research and policy design would be to develop a definition of quality in adolescent mental health services within these low-resource and violent settings. This would be done in partnership with adolescents, families, health care providers and managers, intersectoral service providers, other local key stakeholders and policy- and decision-makers, testing and refining each of these interventions, and inserting the interventions within policy on adolescent mental health services.

It cannot be emphasised enough that a future priority of research to defining quality would be to ensure the active participation of adolescents throughout the process. The participation of adolescents was planned for this study through quantitative and qualitative methods, however, due to the COVID-19 pandemic this was impossible to realise.

The ideal approach to defining and implementing quality would involve implementation research and a universal, horizontally integrated and institutionalised response that includes the experience and continued engagement of adolescents and

their families, health care providers and other sectors (e.g., education, social assistance, judiciary) to address the adolescent's mental health through health responses to their social, cultural, environmental and economic realities (589,590).

### Mental Health Financing and Non-Financing Options

Contributing to poor quality in adolescent mental health services is the current health system's financing. This was described in **Chapters 2** and **6**, wherein adolescent mental health services were characterised as underfinanced and overburdened, with a low supply of health care providers in the region to meet the demand. Adolescents were not part of the BHU mandate. This indicates that there are limited financial resources earmarked (if at all) for this population group with potentially no political mechanism to protect the mental health budget for adolescents. Consequently, financial resources and priorities in health were allocated to other services and population groups.

To address this gap, it would be important to mobilise greater governmental and private financial resources to respond to poor quality care and the barriers within the provision of mental health services to adolescents. To increase the priority of investing in adolescent mental health services for the government and private sector, the health system and the intersectoral network need to illustrate the economic benefits of investing in adolescent mental health. As such, this requires investment case studies that evaluate the return on investment and cost-benefit ratio of adolescent mental health and intersectoral services. A recent systematic review (611) showed the positive economic effects (decrease in days unable to work; reduction in disability; increase in functioning at work) of mental health interventions for the general population (RCTs of psychosocial and/or pharmacological interventions for common mental disorders, severe mental disorders, substance use disorders and PTSD) in

LMICs. Mental health treatments not only led to improved mental health symptoms, but also had a positive effect on work-related outcomes, social functioning and a reduction in disability (611). Similar studies should be conducted that illustrate these economic benefits, as well as the benefits of adolescent mental wellbeing on other health outcomes, such as NCDs (612). This is particularly relevant in light of the Covid-19 pandemic.

Mobilisation of financial resources is not enough. One way to contribute to the limited resources is through the use of existing financial resources from current programmes or local initiatives that respond to adolescent mental health in different services and sectors. This could be achieved through investigating and tracking how financial resources are allocated through the national, state and municipal health budgets; the administrative budget; as well as through the intersectoral network. The existing money could then be funneled to adolescent mental health services. Tracking these financial resources could also help identify health expenditure inefficiencies, which could increase the flow of additional, existing resources to be used towards adolescent mental health. Relatedly, Brazil could reform its tax policy and increase tax revenues, by raising taxes across all socioeconomic groups or implementing a wealth tax, with the additional financial resources allocated towards health services within low resource settings (613). Johnson and colleagues (2021) (614) recently conducted a discrete-choice experiment survey to determine how willing US participants (n=10,000) would be to increase taxes for social programmes, including mental health treatment services. Results showed significant support to expand mental health programmes through tax increases, despite a large proportion of the participants opposed to raising taxes. Also, participants supported budget trade-offs, with funds from other public programmes (motor-vehicle safety; food safety; unemployment)



being funneled into mental health treatment services (614). Additional funds could be raised by advocating to the São Paulo government to include adolescent mental health within the primary care mandate. Also, working with established community-based organisations in the territory could support greater reach of vulnerable adolescents and the delivery of mental health services (615).

It would also be important to reform the health system's financing. To this end, there should be a clear allocation of financing, earmarking financial resources from national, state and municipal health budgets to adolescent mental health services. It would involve protecting the adolescent mental health budget by connecting the budget with health facilities and specific interventions by mental health condition. In addition, resources could be allocated to training (pre-service and in-service), task-shifting opportunities, recruiting more health care providers and building another PCCca in the territory. Similarly, fundraising opportunities with universities at the local level could be promoted to garner greater investment in adolescent mental health services and promote local ownership.

Also, resources could be shifted to focus on performance-based financing, wherein contractual arrangements are made to incentivise health care providers to perform better and ensure quality within adolescent mental health services, while engaging more competent health care providers (616). Evidence shows mixed results on the effectiveness of performance-based financing on health care provider performance (617–621). Some evidence has shown that it positively motivates health care provider behaviour change, while other evidence has showed it has led to risks, costs and perverse effects (622,623). To overcome this, performance-based financing schemes need to be designed to safeguard against these adverse impacts (623). Interestingly, there is a paucity of research on incentivised mental health service

indicators, pointing to an area for future research. Proposed incentivised mental health service indicators could include: the number of adolescent mental health patients followed by qualified health care providers; and the number of successful referrals and follow-up.

Other non-financial strategies have been employed to improve the provision of safe, effective and quality care by addressing health care provider performance. A systematic review identified ten different interventions that could improve health care provider performance, however, due to bias and the heterogeneity of evaluation methods, it was not possible to identify the most effective interventions (624). Training strategies (625) and supervision approaches (626) to improve health care provider performance were also investigated. Training strategies showed that educational outreach visits, followed by in-service training, peer-to-peer training, and self-study had modest effects on health care provider practice (625). Supervision strategies showed that routine supervision and audit with feedback were associated with modest improvements in health care provider practices (626). However, due to the low-quality of evaluations and heterogeneity of methods, it was not possible for the authors to provide substantial evidence on the effectiveness of these strategies on health care provider performance (625,626). Indeed, evidence on the effectiveness of interventions to improve health care provider performance in LMICs is limited (624). Future research could compare different health care provider training and supervision strategies, using rigorous study designs (such as an interrupted time series analysis, an analytical method that can evaluate outcomes longitudinally pre- and post-intervention; useful for establishing causality when limited resources preclude the possibility of conducting an RCT) (627), while monitoring health care provider performance within specific contexts to understand the approaches most effective on

performance and service delivery (625). Other research has showed that printed educational materials may slightly improve practice outcomes among health care providers, compared to no intervention (592,628), while educational meetings alone or combined with other interventions may improve professional practice and health care outcomes for patients (592,629,630).

In addition, it would be important to address governance issues and arrangements within mental health systems. Petersen and colleagues (2017) investigated mental health system governance in six LMICs, showing a need to strengthen: (i) mental health literacy and reduce stigma; (ii) intersectoral collaboration, and participation of service users and communities; (iii) mental health system building blocks to ensure effectiveness, efficiency and responsiveness; and (iv) the development and implementation of mental health plans at the subnational level by health care managers. Ways in which to overcome these challenges included prioritising mental health within public health; training health professionals and ensuring accountability at the national and district levels; establishing formal structures of intersectoral collaboration at various levels within the government; increasing knowledge and awareness of service users and families about mental health and encouraging their participation to hold services to account; and developing indicators on adolescent mental health (9). Other studies have showed that governments that contract out to not-for-profit or non-state actors for health services were associated with positive health outcomes among service users, and increased access and use of services (631,632).

In looking at the broader challenges of quality and the extent that stigma negatively influences quality of adolescent mental health services, conducting research on adolescents', families and the communities' social and cultural

conceptualisations of mental health and mental health stigma, to address the limited knowledge available on cultural concepts, practices, and stigma should be done. This should also extend to healthcare providers given their stigmatising attitudes in the narratives illustrated in **Chapter 6**. The information could be used to inform anti-stigma interventions targeting healthcare providers, adolescents, families and communities about mental health. Within health services, stigma reduction indicators could be incorporated into quality of care measures, as put forth by Knaak and colleagues (2015) (633).

### 7.3.2. Behavioural Ecological Model on Access and Navigation to Quality in Adolescent Mental Health Services

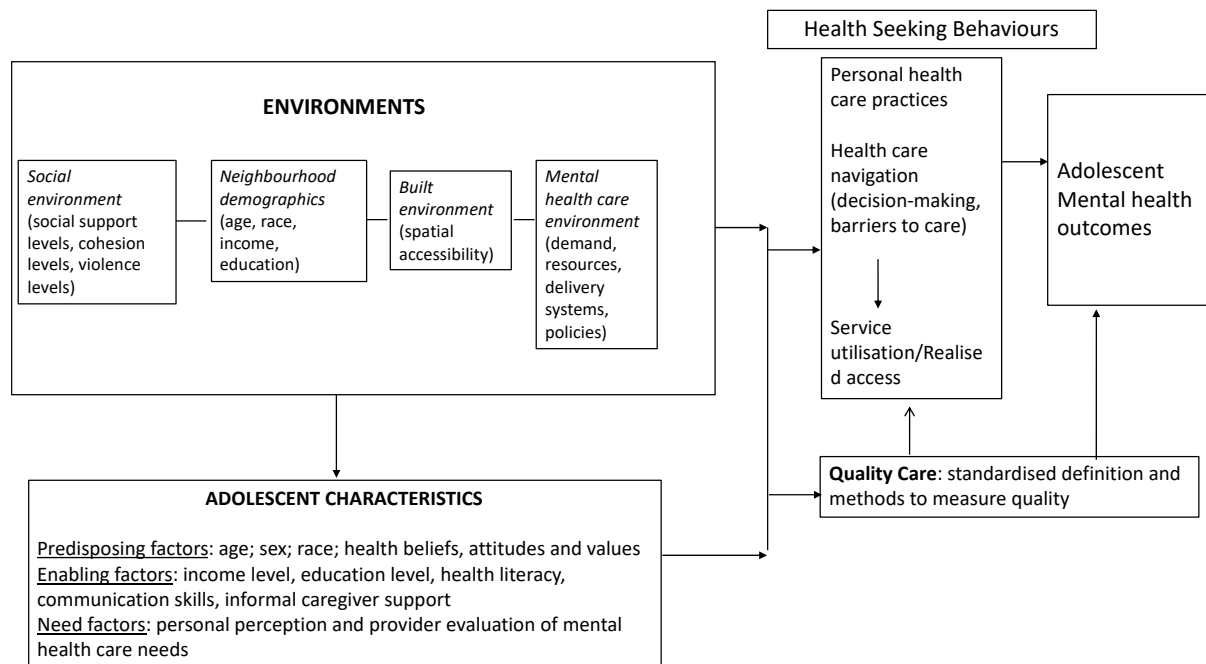
Based on the findings generated from the doctoral thesis and the lack of access and barriers to quality and continuity of care, a behavioural ecological model was adapted on access and navigation to quality adolescent mental health services, developed by Ryvickers (2018) (634) (figure 10). The aim of the model is to tackle barriers and enhance enablers to access, navigation and use of quality services, while including the active participation of all stakeholders (including adolescent service users and families) within mental health services.

The aim of navigation, according to Sofaer (2009), is to access and use health services to improve health outcomes. It is defined as the interactive process within which the patient comes into contact with and moves in and through the different parts of the health system (635). This model combines the behavioural model of health service use developed by Andersen (636,637), the ecological model in epidemiology of ageing developed by Satariano (2006) (638), and interventions within quality generated from the findings of this doctoral thesis.

The model illustrates how individual (e.g., knowledge, beliefs) and environmental factors (social, built and mental health services) interact, influencing the adolescent's ability to access and navigate available mental health care services. It demonstrates how adolescents adjust and adapt to their context, or environment, with these factors varying along a continuum (634). It also provides constructs for future implementation research to be tested and refined, addressing the barriers and enablers at the individual and environmental levels of mental health care access and navigation, in limited resource settings (595).

A good starting point for future research would be to use implementation research to test, refine and optimise this model through the use of mixed methods among adolescent service users, families, health care providers, health service managers, intersectoral services (teachers, social care providers, judicial personnel etc), other key stakeholders and community members within these limited resource settings of São Paulo city. Given research ties and collaboration between University of São Paulo (USP) and UCL's Institute for Global Health, this could be led by USP.

Figure 9. Behavioural Ecological Model of Access to and Navigation of Quality Adolescent Mental Health Services



Source: \*Adapted from Ryvicker M. 2018. A conceptual framework for examining healthcare access and navigation: A Behavioural-Ecological Perspective. Soc Theory Health 16(3): 224-240. \*The adapted component is the quality care.

### 7.3.2.1. Adolescent's Characteristics

The proposed model illustrates how an adolescent's personal characteristics interact with opportunities and challenges to successfully navigate services and manage their own mental health (636,637). These characteristics interact to encompass health behaviour, including individual health practices and determinants of access, navigation and use of services.

Predisposing factors are defined as the adolescent's capacity to manage the available resources, to respond to mental health issues. These include race, age, sex, as well as their mental health beliefs, values and attitudes. Enabling factors are defined as resources that influence the service user, including education level, income level, mental health literacy, caregiver support and communication skills. Meanwhile, need factors are a combination of the adolescent's self-awareness, as well as, the

provider's assessment of mental health care needs, encompassing mental health status and diagnosis (634). As was illustrated in **Chapter 6** of this doctoral thesis, health care providers acknowledged that adolescent substance abuse, parent/family conflict and lack of social support were barriers to access and use of services. The doctoral thesis also showed that positive social support was associated with a lower likelihood of internalising symptoms among adolescents compared to those with limited/no social support (**Chapter 5**). These findings illustrate inequalities in access and use of care and are potential areas to be explored for implementation research. For example, conducting quantitative surveys among adolescents across São Paulo city to identify these personal characteristics to be used in intervention design and development.

Future research should also consider the age of the adolescent in access, navigation and use of services. Adolescence represents a broad age range, with adolescents 10-14 years having different needs and targeted strategies compared to those 15-19 years of age (273). This includes the age at which adolescents can seek services without parent/guardian consent. As was described in **Chapter 2**, adolescents 12 years of age and older can seek services without consent of the parent/guardian (420,435). This is important as it relates to confidentiality and is one of the most cited concerns among adolescents seeking mental health services (57). This could be addressed using participatory research methods in the design of the intervention.

### [7.3.2.2. Quality in Adolescent Mental Health Services](#)

The model illustrates how quality mental health care informs processes of access, navigation and use of mental health services, the adolescent's health

behaviour and mental health outcomes. As described above, a standardised definition of quality and methods to measure quality should be developed. The definition and methods should be tested and refined with adolescents, families, health service providers and managers and other local community stakeholders.

### 7.3.2.3. Environments

The model also considers different environments (social, built and mental health services) or contexts, within which the adolescent is exposed to and interacts with, influencing their access, navigation and use of mental health care (57,634,637). Through implementation research, the adolescent's experience of these environments, as well as perspectives from families, health care providers and communities should be accounted for within the design of the intervention, to ensure contextual equipoise (595).

#### Mental health service environment

The *mental health care environment* is composed of four components. As proposed by Andersen (2002) (634,639,640), these components show how market factors affect health care access and navigation; all of which is influenced by the policy environment.

The first group includes indicators of mental health care demand. Within this doctoral thesis, health care providers at both the primary and secondary levels acknowledged the high demand for adolescent mental health services (**Chapter 6**). The second group represents the region's social and economic resources (i.e., income inequality and unemployment), impacting the availability of mental health services (640). As was shown in **Chapters 2, 5 and 6**, adolescents in low-resource settings of



São Paulo city, were exposed to poverty and high levels of violence. The third group includes characteristics of the adolescent mental health service delivery system, such as the services available (640). As was acknowledged in **Chapter 6**, there was one PCCca in the region which was not sufficient to meet the demand for adolescent mental health care. Finally, the fourth group focusses on market dynamics (i.e., insurance use and payment system variables) (634, 639). As was described in **Chapters 2 and 6**, there was a lack of knowledge about financing that is earmarked for adolescent mental health services. These findings illustrate some of the barriers to the current services; as such, future research activities could be embedded within each of these groups to address these barriers. For example, with one PCCca in the region, if additional state and municipal financial resources could be earmarked for child and adolescent mental health, another PCCca could be built in the territory; alternatively, the one PCCca could expand its services to greater outreach activities to try to ensure further reach in the community. This would require the allocation of more financial and human resources. As well, future research should identify barriers and enablers for adolescent service users and families within the mental health service environment, through the use of participatory research methods.

### Social Environment

The *social environment* focusses on social capital and the perceived quality of social relationships, cohesion and trust within the region (634). The doctoral thesis showed how perceived social support from families, friends and teachers was associated with improved internalising symptoms among adolescent students across São Paulo city (**Chapter 5**). At the same time, health care providers discussed the perceived dangerousness of the environment in terms of drug cartels and violence and its adverse impact on access, use and delivery of adolescent mental health

services (**Chapter 6**). Future research should include adolescent service users and families perspectives of the social environment. Furthermore, based on the results of the PhD, future research activities could be embedded within the social environment to promote social support and address violence among families, friends and teachers. This could be achieved through activities adapted from the INSPIRE Handbook (289).

### Built Environment

Meanwhile, the *built environment* represents public space, including physical infrastructure, public transportation and use of land. This impacts how individuals socialise, travel and utilise different services. It also includes recreation (634). As was shown in **Chapter 6** of this doctoral thesis, health care providers perceived that the cost of public transportation required to access the one PCCca in the region constrained access to mental health care, as these adolescents did not have the resources to pay for this transportation. These barriers could be addressed in the design of future interventions. For example, by providing concessions to adolescents on public transportation such as low/no cost travel fees.

### 7.3.3. Improving the Primary Health Care Service Response

Evidence from **Chapters 4 and 6** found that primary healthcare services were used by adolescents to obtain mental health care. Given the challenges identified at the primary health care level, there needs to be greater strengthening and integration of adolescent mental health services into the primary health care system. As such, adolescents should be prioritised within these services, health care providers need to be trained on adolescent mental health, and there needs to be access to, and use of,

screening tools to identify not only adolescents with diagnosable mental health conditions but also those at-risk and with mild and evolving symptoms.

One way that this could be achieved is through the development of one-stop primary health care centres dedicated to adolescent mental health, as illustrated by Headspace in Australia (641). Headspace is an easy to access, integrated, multidisciplinary primary health care centre for young people (12-25 years). It provides youth-friendly mental health, general health (physical and sexual health), drug and alcohol services, as well as vocational/educational support services. It aims to remove barriers to access and increase service-uptake. This includes flexible service hours to meet young people's schedules, low/no cost services, open referrals and a welcoming environment targeting young people (641). It also provides online support and school-based interventions (346). This one-stop primary health care centre could be inserted within the access and navigation model for adolescents, with referral mechanisms to specialised services and other sectors.

To address health care providers' limited competency at the primary health care level, task-shifting – or training non-specialised healthcare providers on adolescent mental health – has been found to be effective in building health care provider's capacity within adolescent mental health services (360). It has also expanded adolescent mental health coverage, and increased the number of cost-effective human resources and mental health specialists (89,362). At the same time, research has showed that task-sharing expanded to community members, including school teachers, caregivers and religious leaders, has led to increased mental health screening and diagnosis, as well as, access to mental health services for adolescents (19,318,338,340,345,350–354). A systematic review (19) showed that interventions that built the capacity of community members and non-governmental organisations

(NGOs) to deliver services that focussed on increasing mental health awareness, reducing stigma, promoting mental health and providing counselling, were effective.

As recommended by *The Lancet Commission on global mental health and sustainable development*, integrating mental health services into primary care could help address the limited mental health resources in LMICs (39). A review from the UK found that trained non-clinical providers with adequate supervision were able to deliver evidence-based treatments for mild-to-moderate mental health conditions, comparable to trained therapists (642). To facilitate this, there needs to be financial resources earmarked specifically for adolescent mental health training and task-shifting. This could include incentives for health care providers, a supervision structure in place, a system of coordinated care, shared decision-making, a supportive organisation system, participation of adolescents and families in the development of task-shifting training materials, and clear process outcomes with protocols on the roles and responsibilities of each health care provider (493,643). At the same time, there is a need for the development and training on the use of evidence-based screening tools for common mental health conditions in these services (535).

**Chapter 6** highlighted barriers within the provision of adolescent mental health services. One way to identify and overcome these barriers to care is to perform audits of the services, or Quality Improvement projects. This could involve interviewing health care providers, adolescents and their families and health managers, as well as reviewing medical files. Once the barriers are identified, the team could develop strategies to overcome these barriers to care.

Promoting the integration of mental health care services into primary care could help also reduce mental health stigma and discrimination among adolescents, families, trained healthcare providers and the community. It could help close the

treatment gap between the prevalence of adolescent mental health conditions and the number of them receiving care (644,645). Mental health services offered through primary health care could respond to the unique needs of adolescents, which include among others, increasing their mental health knowledge and addressing risky behaviours that arise during this stage of life (66).

#### 7.3.4. Telemental Health

Adolescents are early and avid users of information technology (273,364). As such, telemental health can provide an entry point to the health care system. In **Chapter 6**, telehealth was being used to increase access to, and continuity of, adolescent mental health services. There has been appreciation of the particular benefits of telehealth within the context of the COVID-19 pandemic, including in low-resource settings.

The use of telehealth for mental health conditions has a long history, but has been growing in recent years as an accessible, efficient and cost-effective alternative to face-to-face consultations (363). Evidence has found that telehealth is associated with patient satisfaction and is effective in evaluating and analysing mental health conditions (363). It is associated with a reduction in stigma and a lower no-show rate among this age group (324,367). Also, telehealth sessions are typically easier to record which, in the context of informed consent, provides one mechanism to assess quality.

There are challenges, however, to the use of telemental health with regards to privacy, confidentiality and safety. For example, ensuring that telemental health services are delivered to the adolescent service user in a safe space that is private. In

low-resource settings, some families share one technological device among all members. They also may have multiple generations of family living within the same household. As such, these aspects could adversely impact the adolescent's right to privacy and confidentiality. Relatedly, on the provider's side, it is critical that they deliver virtual services in a physical space designated for telemental health care to ensure privacy and confidentiality (324,367,646).

It would also be important to ensure that the health care provider is trained and credentialed to deliver virtual adolescent mental health care. Training would include how to effectively deliver care remotely by strengthening communication, patient engagement, rapport-building and personalisation of services. It would also include how to virtually assess the adolescent's nonverbal cues, facial expressions, emotions, affect and relatedness; identify the adolescent's mental health symptoms and conditions (such as developmental disorders); as well as determine if medication is needed (and how the adolescent will receive the medication and monitor adherence). They should also be trained on community and culturally competent care, particularly among those living in low-resource and violent settings (324,367,647).

Guaranteeing equitable telemental health service use is a challenge as well, particularly for those living in low-resource settings. There may be technological difficulties related to unstable and poor internet connectivity (audio and video quality), distractions within the home that could adversely affect the consultation, as well as limited digital health literacy by parents or guardians (646,647). These components need to be taken into consideration before delivering telemental health services and identify ways in which to overcome these barriers.

At the same time, there needs to be well-defined service flows and an organisational structure for additional resources, including whether these services and

resources will be offered remotely or in-person. Similarly, there needs to be research on the quality of telemental health, as well as identifying patients that would benefit most from in-person visits or telemental health (324,367,648).

#### 7.4. Future Directions

There is a growing recognition of the benefits of promoting mental wellbeing and preventing poor mental health (39,96). To this end, there is a need for an adolescent mental health agenda. One that identifies social and individual risk and protective factors; encourages mental health prevention and promotion; overcomes barriers to access and treatment delays; ensures adolescent-centred mental health services and policies responsive to adolescent mental health needs (39). In addition to the interventions described above, below are some proposed directions for future research, programmes and policies based on the evidence presented in this thesis.

## **RESEARCH**

- There is a need to conduct further longitudinal, mixed methods studies on adolescents' exposure to social and individual risks and perceived protective factors, within limited resource settings. This research could explore the underlying causal mechanisms between social and individual risks and protective factors and adolescent mental health. It would be important to include adolescent students, as well as, those not in education, employment or training. This information could then be used to design interventions to reduce these risks and promote protective factors.
- Research is needed on the validity of cut-off points between diagnostic mental health categories given the role that social and individual risk and protective factors play in adolescent mental health. As well, research is needed on cultural variations in mental health symptoms and distress to adapt and design valid and locally appropriate screening tools.
- Research on multisectoral interventions could be conducted to identify how non-mental health providers can best deliver mental health services. The research should investigate what types of interventions work, how and why to improve adolescent mental health, including the facilitators and barriers of implementing these interventions. Robust evaluation of these services should be conducted.
- There needs to be greater longitudinal, cohort and pragmatic RCTs to identify the development of mental health conditions within these limited resource and violent settings, from emerging and mild manifestations to a diagnosed mental health condition and the chronicity of these conditions. This will help inform interventions and adolescent mental health indicators.
- Research needs to be conducted on adolescents who access and/or receive mental health care in order to estimate the treatment gap.
- Research should explore the ways in which intersectoral actions and networks are developed and the effectiveness of such networks, and the sharing of their experiences.
- Greater research is needed on peer-led mental health interventions in terms of design, implementation and evaluation; as well as the impact it has on peer leaders (649).
- Future research could be conducted on the United Nations Development Programme 'development accelerators' focussing on adolescent mental health; identifying programmes and policies that could have positive mental health effects (650).



- Research is needed on how to recruit new health care providers for adolescent mental health services.
- Further research could explore the effectiveness of targeted community actions on adolescent mental health promotion. A recent systematic review showed limited conceptualisation of social support (651). Further research could investigate how social support is conceptualised (at the adolescent level, family level and community level) at the local level through mixed methods. In addition, studies should be conducted on community-based organisations in these low-resource settings and to evaluate the benefits on adolescents and families within the community.
- Cost-effectiveness analyses and greater research on the financial savings associated with good adolescent mental health should be conducted at different health facility levels to garner greater political support and investment.
- Research is needed on the effects of social, economic and health policies and how to ensure representation of marginalised communities within these policies.
- Research needs to be conducted on adolescents experience of quality in mental health care, as well as research on the ethical components of quality in adolescent mental health care.
- Future studies should focus on psychotic disorders, which are also prevalent among adolescents and for which little evidence on quality of care is available.
- Future studies should focus on pregnant adolescents and those not in education, employment and training to understand their mental health needs and to inform interventions.
- Government policy and funding shape how adolescent mental health service are funded and provided. Yet, the responsibility for ensuring that adolescent mental health needs are met remains unclear. To understand where responsibility lies, formative research using the Whose Responsibility Scale could help identify the community's understanding of where the responsibility lies for adolescent mental health treatment (652).

## **PROGRAMMES**

- Health services need to proactively engage adolescents about their health needs, including mental health needs, and to ensure that they are informed about confidential services that are available to them, including vulnerable and at-risk adolescents. Families should be engaged as well.
- To use existing resources, health services could integrate mental health screening tools when adolescents seek services for other health conditions (sexual and reproductive health services). They also can share best practices with other services to ensure a community of practice.
- There needs to be greater collaboration and referral mechanisms in place within health services and with those outside of the health sector that adolescents come in contact with (criminal justice, social assistance, education). It would also be important to identify local champions to coordinate this collaboration.

- Schools could explore adopting an ecologically oriented public health approach to school mental health services: one that actively includes the voices of youth, families and communities, and takes advantage of the relationships and learning opportunities that the schools offer, testing and refining these approaches within schools (653)
- There needs to be greater investment in adolescent mental health programmes at the national, state and local levels. This includes collecting data on adolescent mental health indicators.
- There needs to be greater awareness of adolescent mental health among communities. To achieve this, intersectoral programmes should educate the community on adolescent mental health needs and services. This could be achieved through developing an awareness manual.
- To overcome stigma associated with mental health services, programmes could frame mental health around resiliency and wellness (654).
- Ethical components to quality should be promoted more and investigated further in mental health care.

### **POLICIES**

- Based on the thesis findings, local health care providers were unaware of policies. As such, there needs to be greater communication and dissemination from the national and state levels to the local level health care services and communities (including adolescents so that they are aware of the policies affecting them).
- Champions for adolescent mental health at the local, state and national level should be identified, including adolescents themselves (with lived experience) to help push the adolescent mental health policy agenda forward.
- There needs to be a continuous commitment and national dialogue among policy makers on a comprehensive approach to target barriers to access and quality within the current mental health system. Policymakers should engage adolescents in this process to understand their experiences (317) as promoted by the United Nations Convention on the Rights of the Child and the Sustainable Development Goals.

## **7.5. Contributions of this PhD**

Overall, evidence from this doctoral thesis has contributed to a greater understanding of adolescent mental health and the provision of mental health services to adolescents in low-resource and violent settings within the backdrop of São Paulo city, Brazil.

Firstly, the empirical evidence on quality within adolescent mental health services in these contexts highlighted how adolescents were neglected and not prioritised within the mental health system. It also highlighted a lack of quality in adolescent mental health care and the complex system within which the adolescent navigates. At the same time, there was an acknowledgement that to improve adolescent mental health, services should be framed within a multidisciplinary, social determinants of health perspective, requiring a reform of the health, social, education and judicial systems. This evidence contributes to the limited literature on adolescent mental health in these settings and illustrates that greater research and system reforms are needed. Secondly, the finding that social support plays a protective factor for adolescent mental health reveals the importance of developing interventions that promote social support from parents, friends and teachers. Thirdly, the broader global evidence on aspects of quality as conforms to the WHO Global Standards illustrated the gap in the literature on quality and the need to develop a standardised definition of quality in adolescent mental health care and methods used to measure quality.

## 7.6. Limitations of Findings

In addition to the limitations mentioned within each chapter, there are some overall limitations to this doctoral thesis.

First, given the methods employed in this doctoral thesis, it was not possible to explore and identify the underlying causal mechanisms between the social determinants of mental health, individual risk and protective factors with adolescent mental health outcomes. It was not possible to test the bidirectional nature of social

and individual risk factors due to the cross-sectional nature of the study in **Chapter 5**. This is resultantly a limitation of the thesis.

This PhD took place within the COVID-19 pandemic. As such, collecting the qualitative data was restricted to conducting the interviews remotely, through the use of Zoom, Skype or WhatsApp. In-person meetings were not possible. Although the research team tried to make the semi-structured interviews as natural as possible by presenting themselves as relaxed yet professional, this could have influenced the results. For example, there could have been technological issues, and nonverbal language and cues not observed.

Another limitation was that only health care providers were interviewed. No interviews or surveys were administered to adolescents, health care managers and other health care providers, or review medical records. Quantitative research and qualitative interviews with adolescents were planned, however, due to the COVID-19 pandemic, this was rendered impossible and methods were adapted due to feasibility. The additional information from adolescent surveys and qualitative interviews would be useful to investigate the demand- side of adolescent mental health services. Future research could build upon this by using mixed methods to gain a comprehensive understanding of adolescent mental health care within these settings. This could involve conducting a prospective cohort study among adolescents receiving mental health services at the BHU and PCCca to investigate their experiences of care, mental health conditions and their exposure to risk and protective factors.

A limitation to the approaches used to conceptualise and define quality, barriers and enablers of mental health services was in the data collected. Evidence deriving only from qualitative research may not allow triangulation representative of other frameworks based on more quantitative measurements (e.g., number of adolescents

who do not seek services at PCCca due to distance). However, this was due to not wanting to impose specific conceptualisations onto the health care provider, which could have influenced their response and not reflected their reality.

Relatedly, health system financing was not explored in the qualitative interviews. Although recognised as a barrier within the provision of adolescent mental health services, this information would have been useful to understand how financial resources are organised and earmarked for adolescent mental health. A policy and literature review were conducted to overcome this, however, there was limited information available on adolescent mental health financing in Brazil and no information available at the local level.

Community actions were indirectly explored in this thesis; however, it would be important to conduct research on this and explore its influence on adolescent mental health.

## 7.7. Conclusions

The doctoral thesis contributes to the limited evidence on adolescent mental health needs and mental health services. Adolescence provides a window of opportunity to intervene and prevent mental health symptoms and conditions. There are several potential interventions including defining and standardising quality and methods to measure quality, the development of an access and navigation model to quality adolescent mental health services, and strengthening the primary health care response and use of telemental health. This is particularly important in low-resource settings where the majority of the world's adolescents live. These adolescents are exposed to poverty, violence and other interacting and compounding social and individual risk factors, negatively influencing their mental health and well-being.

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# Annexes

## Annex 1. Ethics Approval

### Ethics Approval from UCL

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UCL RESEARCH ETHICS COMMITTEE  
OFFICE FOR THE VICE PROVOST RESEARCH



12<sup>th</sup> September 2018

Professor Glyn Lewis  
Division of Psychiatry  
UCL

Dear Professor Lewis

**Notification of Ethics Approval with Provisos**

**Project ID/Title: 2744/005: Community violence and adolescent mental health**

Further to your satisfactory responses to the Committee's comments, I am pleased to confirm in my capacity as Joint Chair of the UCL Research Ethics Committee (REC) that your study has been ethically approved by the UCL REC until **12<sup>th</sup> September 2019**.

However, careful editing of the parent Participant Information Leaflet (PIL) is required given the following errors:

- PIL Parent of children in school/centre: #5: insert 'paper questionnaires'; #5, #10, #12, #13: change 'your' to 'your child';
- PIL: Parent of pregnant adolescent: #5 insert 'paper questionnaires'; #3, #4, #6, #10, #11, #13: change 'your' to 'your child'; #7 remove 'interviews'.
- PIL for parents of adolescent service users: #3, #4, #5, #13: change 'your' to 'your child'.

Supposedly, new consent forms have been created for adolescents being interviewed and their parents, however these were not submitted so please provide for our records.

Ethical approval is also subject to the following provisos:

**Notification of Amendments to the Research**

You must seek Chair's approval for proposed amendments (to include extensions to the duration of the project) to the research for which this approval has been given. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing an 'Amendment Approval Request Form'

<http://ethics.grad.ucl.ac.uk/responsibilities.php>

**Adverse Event Reporting – Serious and Non-Serious**

It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator ([ethics@ucl.ac.uk](mailto:ethics@ucl.ac.uk)) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Joint Chairs will decide whether the study should be terminated

Office of the Vice Provost Research, 2 Taviton Street  
University College London  
Tel: +44 (0)20 7679 8717  
Email: [ethics@ucl.ac.uk](mailto:ethics@ucl.ac.uk)  
<http://ethics.grad.ucl.ac.uk/>

pending the opinion of an independent expert. For non-serious adverse events the Joint Chairs of the Ethics Committee should again be notified via the Ethics Committee Administrator within ten days of the incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Joint Chairs will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

**Final Report**

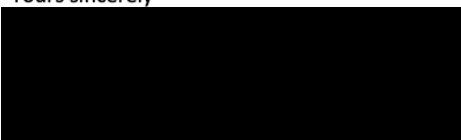
At the end of the data collection element of your research we ask that you submit a very brief report (1-2 paragraphs will suffice) which includes in particular issues relating to the ethical implications of the research i.e. issues obtaining consent, participants withdrawing from the research, confidentiality, protection of participants from physical and mental harm etc.

In addition, please:

- ensure that you follow all relevant guidance as laid out in UCL's Code of Conduct for Research: <http://www.ucl.ac.uk/srs/governance-and-committees/resgov/code-of-conduct-research>
- note that you are required to adhere to all research data/records management and storage procedures agreed as part of your application. This will be expected even after completion of the study.

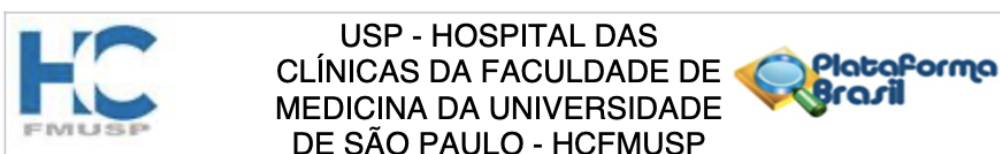
With best wishes for the research.

Yours sincerely



**Professor Michael Heinrich**  
**Joint Chair, UCL Research Ethics Committee**

Cc: Delanjathan Devakumar



**PARECER CONSUBSTANCIADO DO CEP**

**DADOS DO PROJETO DE PESQUISA**

**Título da Pesquisa:** Violência Comunitária e Saúde Mental do Adolescente no Município de São Paulo

**Pesquisador:** Paulo Rossi Menezes

**Área Temática:** Pesquisas com coordenação e/ou patrocínio originados fora do Brasil, excetuadas aquelas com copatrocínio do Governo Brasileiro;

**Versão:** 6

**CAAE:** 12878219.8.0000.0065

**Instituição Proponente:** Faculdade de Medicina da Universidade de São Paulo

**Patrocinador Principal:** Medical Research Council

**DADOS DA NOTIFICAÇÃO**

**Tipo de Notificação:** Envio de Relatório Parcial

**Detalhe:**

**Justificativa:**

**Data do Envio:**

**Situação da Notificação:** Parecer Consubstanciado Emitido

**DADOS DO PARECER**

**Número do Parecer:** 3.907.066

**Apresentação da Notificação:**

Notificação se refere ao envio de relatório parcial do estudo "Relatório de status do projeto 01: Janeiro de 2020.

**Objetivo da Notificação:**

Envio de Relatório parcial do estudo.

**Avaliação dos Riscos e Benefícios:**

Não se aplica.

**Comentários e Considerações sobre a Notificação:**

Conforme consta no resumo do relatório do projeto, anexado na Plataforma Brasil, após a aprovação ética pelo CEP da FMUSP, em 25/06/2019, a proposta foi submetida para avaliação da

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**UF:** SP **Município:** SAO PAULO  
**Telefone:** (11)2661-7585 **Fax:** (11)2661-7585 **E-mail:** cappesq.adm@hc.fm.usp.br

Continuação do Parecer: 3.907.066

CONEP, cuja aprovação é datada de 25/01/2020. No período foram mantidos contato com as instituições envolvidas na proposta (Centro de Detenção para cumprimento de medidas socioeducativas em São Paulo, Unidades de Saúde em Araraquara, Centro de Atendimentos Psicossociais), adequação dos formulários e instrumentos de pesquisa para atender solicitação da CONEP. Em razão da aprovação pelo Tribunal de Justiça do Estado de São Paulo para a realização de atividades de pesquisa junto à Fundação Casa, também foram mantidos contatos para atualização do cronograma das ações previstas, justificativa pelo atraso e prorrogação de prazos.

**Considerações sobre os Termos de apresentação obrigatória:**

Adequados.

**Conclusões ou Pendências e Lista de Inadequações:**

Não há pendências ou inadequações.

**Considerações Finais a critério do CEP:**

**Este parecer foi elaborado baseado nos documentos abaixo relacionados:**

Tipo Documento	Arquivo	Postagem	Autor	Situação
Envio de Relatório Parcial	Rel_status_projeto_Viol_Comunitaria_01.pdf	04/02/2020 08:33:57	Paulo Rossi Menezes	Postado

**Situação do Parecer:**

Aprovado

**Necessita Apreciação da CONEP:**

Não

SAO PAULO, 09 de Março de 2020

---

**Assinado por:  
ALFREDO JOSE MANSUR  
(Coordenador(a))**

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**PARECER CONSUBSTANCIADO DA CONEP**

**DADOS DO PROJETO DE PESQUISA**

**Título da Pesquisa:** Violência Comunitária e Saúde Mental do Adolescente no Município de São Paulo

**Pesquisador:** Paulo Rossi Menezes

**Área Temática:** Pesquisas com coordenação e/ou patrocínio originados fora do Brasil, excetuadas aquelas com copatrocínio do Governo Brasileiro;

**Versão:** 6

**CAAE:** 12878219.8.0000.0065

**Instituição Proponente:** Faculdade de Medicina da Universidade de São Paulo

**Patrocinador Principal:** Medical Research Council

**DADOS DO PARECER**

**Número do Parecer:** 3.809.268

**Apresentação do Projeto:**

As informações elencadas nos campos "Apresentação do Projeto", "Objetivo da Pesquisa" e "Avaliação dos Riscos e Benefícios" foram retiradas do arquivo Informações Básicas da Pesquisa (PB\_INFORMAÇÕES\_BÁSICAS\_DO\_PROJETO\_1269490.pdf de 05/08/2019) e do projeto detalhado.

**INTRODUÇÃO**

Apesar da maioria das mortes por homicídio ocorrer entre países de baixa e média renda per capita (World Health Organization, United Nations Office on Drugs and Crime et al. 2014), as pesquisas concentram-se majoritariamente em países de alta renda (Farrington 2000). A América do Sul possui as taxas mais altas de homicídio no mundo, após a América Central e o Caribe. Entre os países da América do Sul, o Brasil destaca-se pelos altos níveis de corrupção e criminalidade (Institute for Economics & Peace 2018), estando entre os vinte países mais violentos do mundo. A taxa média de homicídios no Brasil é cinco vezes a taxa global (32.4 vs 6.7 por 100.000 inhabitants) (World Health Organization 2014). Em 2004, a violência causou a perda de aproximadamente 2.5 milhões de anos de vida saudáveis (2.488.000 DALYs) no país (Murray, de Castro Cerqueira et al. 2013). Historicamente, as altas taxas de violência no país refletem o aumento de crimes contra a propriedade (roubos, extorsão e sequestro) e dos homicídios associados a estes crimes, a emergência do crime organizado, a violação sistemática de direitos

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Continuação do Parecer: 3.809.268

formação em nível superior podendo ser assistente social, fonoaudiólogo, pedagogo, psicólogo, terapeuta ocupacional ou outro profissional que componha com o projeto do serviço; e 5 profissionais de nível médio entre técnico de enfermagem, auxiliar de enfermagem, técnico administrativo, técnico educacional e artesão” (Taño & Matsukura TS, 2014, p.210).

Acreditamos também o seguinte trecho introdutório na página 11 de 16:

“A pesquisa em CAPSij e UBS em São Paulo terá uma única etapa: entrevistas semiestruturadas com profissionais de saúde que trabalham em Centros Comunitários de Atenção Psicossocial e Unidades Básicas de Saúde. O objetivo é explorar o funcionamento da rede de acolhimento, cotidiano dos serviços, percepções sobre a relação entre saúde mental e violência e utilidade do diagnóstico de TEPT” Finalmente, ainda na sessão sobre, incluímos maior detalhamento das diferenças entre o roteiro de a ser utilizado em entrevista com profissionais das UBS e do CAPSij (página 12 de 16): “A principal diferença entre os roteiros de entrevista a serem aplicados entre os profissionais das UBS e do CAPSij refere-se a identificação e referência de casos de saúde mental, levando-se em conta a inserção da atenção primária das UBS dentro das diretrizes do ESF comparado com o atendimento de nível secundário prestado pelos CAPSij”.

Os subtítulos incluídos na sessão “Pesquisa em Centros de Atendimento Psicossociais Infantojuvenis (CAPSij) e Unidades Básicas de Saúde (UBS)” foram: “Contexto da Pesquisa em CAPSij e UBS em São Paulo” (página 7 de 15) e “Etapa Qualitativa em CAPSij e UBS em São Paulo”(página 7 de 15)

ANÁLISE: PENDÊNCIA ATENDIDA.

12.4. Resultados do estudo: garantia do pesquisador que os resultados do estudo serão divulgados para os participantes da pesquisa e instituições onde os dados foram obtidos. Solicita-se adequação.

RESPOSTA: Solicitação incluída em todos os termos que se encontram anexados na Plataforma Brasil. Ao mesmo tempo, anexamos uma declaração do Prof. Dr. Paulo Rossi que garante a divulgação dos resultados obtidos pela pesquisa para as instituições onde os dados foram obtidos (Declaração\_resultados finais).

ANÁLISE: PENDÊNCIA ATENDIDA.

### **Considerações Finais a critério da CONEP:**

Diante do exposto, a Comissão Nacional de Ética em Pesquisa - Conep, de acordo com as atribuições definidas na Resolução CNS nº 510 de 2016 e na Norma Operacional nº 001 de 2013

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ÉTICA EM PESQUISA



Continuação do Parecer: 3.809.268

do CNS, manifesta-se pela aprovação do projeto de pesquisa proposto.

Situação: Protocolo aprovado.

**Este parecer foi elaborado baseado nos documentos abaixo relacionados:**

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1269490.pdf	05/01/2020 09:14:36		Aceito
Projeto Detalhado / Brochura Investigador	Projeto3.pdf	05/01/2020 09:12:20	Ligia Kiss	Aceito
Projeto Detalhado / Brochura Investigador	Projeto3_limpo.pdf	05/01/2020 09:12:02	Ligia Kiss	Aceito
Outros	RespostasPendenciaDocumental.pdf	05/01/2020 09:06:55	Ligia Kiss	Aceito
Outros	RoteiroEntrevistaAdolescentes.pdf	20/12/2019 09:57:02	Ligia Kiss	Aceito
Outros	RoterioEntrevistaProfissionaisFC.pdf	20/12/2019 09:56:35	Ligia Kiss	Aceito
Outros	RoteiroEntrevistaProfissonaisUBS.pdf	20/12/2019 09:55:57	Ligia Kiss	Aceito
Outros	RoteiroEntrevistaProfissionaisCAPS.pdf	20/12/2019 09:55:17	Ligia Kiss	Aceito
Outros	QuestionarioAdolescenteAraraquara.pdf	20/12/2019 09:54:21	Ligia Kiss	Aceito
Outros	QuestionarioAdolescentesFundacaoCasa.pdf	20/12/2019 09:53:44	Ligia Kiss	Aceito
Outros	QuestionarioAdolescentesEscola.pdf	20/12/2019 09:53:02	Ligia Kiss	Aceito
Outros	RespostasParecer3746766.pdf	20/12/2019 09:52:01	Ligia Kiss	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TermoProfissionalcorrigidoll.pdf	20/12/2019 09:47:14	Ligia Kiss	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TermoFCasacorrigidoll.pdf	20/12/2019 09:46:54	Ligia Kiss	Aceito
TCLE / Termos de Assentimento /	TermoFCasapaiscorrigidoll.pdf	20/12/2019 09:46:25	Ligia Kiss	Aceito

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COMISSÃO NACIONAL DE  
ÉTICA EM PESQUISA



Continuação do Parecer: 3.809.268

BRASILIA, 25 de Janeiro de 2020

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**Assinado por:**  
**Jorge Alves de Almeida Venancio**  
**(Coordenador(a))**

## Annex 2. PROSPERO

Evaluating quality in adolescent mental health service delivery: a systematic review  
*Meaghan Quinlan-Davidson, Kathryn Roberts, Delan Devakumar, Susan Sawyer, Ligia Kiss*

### Supplemental Material 1. PROSPERO Registration

#### Citation

Meaghan Quinlan-Davidson, Kathryn Roberts, Delan Devakumar, Susan Sawyer, Ligia Kiss.  
Evaluating quality in adolescent mental health service delivery: a systematic review. PROSPERO  
2020 CRD42020161318 Available from:  
[https://www.crd.york.ac.uk/prospero/display\\_record?ID=CRD42020161318](https://www.crd.york.ac.uk/prospero/display_record?ID=CRD42020161318)

#### Review question

What is the global evidence on the aspects of quality of adolescent mental health services (based on the WHO Global standards for quality healthcare services for adolescents) including adolescent mental health literacy, provider competencies, and appropriate packages of services for adolescents with depressive, anxiety, and post-traumatic stress disorders?

#### Searches

-2008-2018

-Sources include (but are not limited to) PubMed, PsycINFO, MEDLINE, EMBASE, LILA

Search documents

-Reference checking of articles generated from electronic database

-Hand searching of references of identified manuscripts

-No restriction on language

#### Types of study to be included

Evaluations or assessments of RCTs, case-control, cohort, cross-sectional, longitudinal, mixed-methods (quantitative data only).

#### Condition or domain being studied

Quality in adolescent mental health services.

#### Participants/population

Study participants include individual patients (10-19 years of age) using mental healthcare services, or adolescents in the community asked where they would seek services for depression, anxiety, or PTSD for themselves; and providers of mental health services, including general practitioners, psychologists, and psychiatrists.

Where study participants include children and adolescents together or adolescents and youth together, the study will be included when the results are sufficiently disaggregated that they can be interpreted for at least part of the 10-19 year old age span.

#### Intervention(s), exposure(s)

Studies that evaluate or assess aspects of quality measures (as conforms to the WHO Global standards for quality healthcare services for adolescents) applied to existing adolescent mental health services, who have used, are currently using, or could potentially seek to use mental health services, or are exposed to interventions or strategies within established mental health services, regardless of health facility level.

#### Comparator(s)/control

For intervention studies only: Intervention vs. control arm (randomized trial), quasi-experimental (open trial with pre- and post-intervention design or matched control group).

#### Main outcome(s)

Studies that include quality, as conforms to the WHO WHO Global standards for quality healthcare services for adolescents, including:

-Adolescents' health literacy (The health facility implements systems to ensure that adolescents are knowledgeable about their own health, and they know where and when to obtain health services);

-Appropriate package of services (The health facility provides a package of information, counselling, diagnostic, treatment and care services that fulfils the needs of all adolescents. Services are provided in the facility and through referral linkages and outreach);

-Providers' competencies (Health care providers demonstrate the technical competence required to provide effective health services to adolescents. Both health-care providers and support staff respect, protect and fulfil adolescents' rights to information, privacy, confidentiality, non-discrimination, non-judgmental attitude and respect)

#### \* Measures of effect

Not applicable.

#### Additional outcome(s)

None.

#### \* Measures of effect

Not applicable.

Search document

#### Data extraction (selection and coding)

All results from the above mentioned search strategy will be exported to Endnote, an electronic reference manager; duplicates will be removed. Independently, two authors (MQD and KR) will screen the titles and abstracts of all studies identified through the search strategy that potentially meet the inclusion criteria mentioned above. The full text of these potentially eligible studies will be retrieved and independently assessed for eligibility by the two team members. The main data to be extracted will include study design, publication type, area of quality, reason (if any) for exclusion, type of service and mental health issue, purpose of study, conceptualisation of quality or quality in relation to or effect of quality on, intervention/measured used, sample, outcomes, and location. Disagreement over the eligibility of particular studies will be resolved through discussion. Discussion will be held to resolve any discrepancies, with additional authors when needed.

#### Risk of bias (quality) assessment

NIH Quality Assessment Tool

#### Strategy for data synthesis

Random effects meta-analyses will be conducted to determine intervention effects, if sufficient data exist and levels of heterogeneity are appropriate. A minimum of three studies will be required per meta-analysis. If data cannot be pooled between intervention studies, findings will be reported in narrative synthesis. Results will be organised and interpreted according to the WHO Global Standards for Quality Healthcare Services for Adolescents. This will include the number of studies that address each element of quality, as well as a summary of the results of each study. Also, results on the conceptualisation of quality or how quality was mentioned in the article will be summarised, geographic location of the studies, and a search and selection strategy will be presented. A table, summarising the characteristics of the study, will be included that provides information on the service, intervention description, study/evaluation design, target population, element of quality addressed, results, and quality assessment will be included.

#### Analysis of subgroups or subsets

Not applicable.

#### Contact details for further information

Meaghen Quinlan-Davidson  
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**Organisational affiliation of the review**

Institute for Global Health, University College London

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**Type and method of review**

Service delivery, Systematic review

**Anticipated or actual start date**

12 November 2019

**Anticipated completion date**

31 January 2020

Search documents

**Funding sources/sponsors**

None.

**Conflicts of interest**

**Language**

English

**Country**

England

**Stage of review**

Review Ongoing

**Subject index terms status**

Subject indexing assigned by CRD

**Subject index terms**

Adolescent; Adolescent Health Services; Delivery of Health Care; Humans; Mental Health Services

**Date of registration in PROSPERO**

27 January 2020

**Date of first submission**

05 December 2019

**Details of any existing review of the same topic by the same authors**

**Stage of review at time of this submission**

Stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	Yes	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

*The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.*

Search document

*The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.*

### Versions

27 January 2020

#### PROSPERO

This information has been provided by the named contact for this review. CRD has accepted this information in good faith and registered the review in PROSPERO. The registrant confirms that the information supplied for this submission is accurate and complete. CRD bears no responsibility or liability for the content of this registration record, any associated files or external websites.

### Annex 3. Process and Output Criteria from WHO Quality Standards to Select Studies

For *adolescent mental health literacy*, this involved identifying and assessing studies using the following criteria:

	<b>Adolescent mental health literacy: Selection criteria for studies</b>
<b>PROCESS</b>	the provision of mental health education and counselling to adolescents by healthcare providers and services that are age and developmentally appropriate
	the provision of information about the availability of mental health, social, and other services to adolescents by healthcare providers and services
	outreach activities by the healthcare facility to promote mental health and increase the use of adolescent mental health services
<b>OUTPUT</b>	adolescents increased knowledge about mental health and awareness about mental health services

For *appropriate package of services*, we identified and assessed studies according to the following:

	<b>Appropriate package of services: Selection criteria for studies</b>
<b>PROCESS</b>	within healthcare services, the provision of a package of mental health information, counselling, diagnostic, treatment and care services to adolescents that meets their needs
	referral to appropriate services
<b>OUTPUT</b>	adolescents receive a package of services that meets their needs, within healthcare or referral services

For *provider competencies*, this involved identifying and assessing studies using the following criteria:

	<b>Provider competencies: Selection criteria for studies</b>
<b>PROCESS</b>	healthcare providers adhere to and implement adolescent mental health evidence-based guidelines and protocols
	healthcare providers provide friendly services to adolescents and respect their rights to information, privacy, confidentiality, non-discrimination, non-judgement attitude, and respectful care
<b>OUTPUT</b>	adolescents receive effective mental health services
	adolescents obtain mental health services that are friendly, supportive, respectful, non-discriminatory and non-judgemental manner, and know their rights in healthcare
	adolescents receive from the healthcare facility accurate, age-appropriate and clear information to facilitate informed choice

#### References

1. WHO. Global standards for quality health care services for adolescents. Geneva: World Health Organization, 2015.

## Annex 4. PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
<b>TITLE</b>			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known.	4-8
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	8
<b>METHODS</b>			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	8
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	8-9
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	9-10
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	10
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	8-11
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	10
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	8-10



Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	10
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	10
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., $I^2$ ) for each meta-analysis.	10

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Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	11
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	NA
<b>RESULTS</b>			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	11
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	12-22
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	12-22
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	12-22
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	NA
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	18
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	NA
<b>DISCUSSION</b>			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	22-27
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	28

Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	29
<b>FUNDING</b>			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	29

*From:* Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: [www.prisma-statement.org](http://www.prisma-statement.org).

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## Annex 5. Table of Included Studies with Additional Information

Author	Country	Service, Intervention, Study description
Davidson et al (2019)	USA	Tablet trauma-focussed cognitive behavioural therapy (TF-CBT) included 11 activities that focussed on breathing retraining, muscle relaxation, affective regulation and cognitive coping; other activities are specific to the TF-CBT model, including psychoeducation relating to traumatic events, safety education, and gradual exposure.
Jager et al (2017)	The Netherlands	Patient-centred communication through Take Care study
Ougrin et al (2018)	UK	Supported Discharge Service Versus Inpatient Care Evaluation (SITE) project comprised of intensive community-based treatment, which involved customised care plans of intensive case management, community/home treatment, day care in hospital
Dion et al (2010)	Canada	Crisis Intervention Program that investigated the capability of emergency department staff to provide emergency assessments to adolescents with mental health issues presenting to the emergency department
Spenser et al (2009)	Canada	CHAT project which aimed to increase collaboration between community paediatricians and mental health clinicians: hired and integrated paediatrician within mental health team; surveyed clinicians about perceived needs; and provided continuing education based on identified needs
Ayton et al (2013)	UK	Audit Care Programme Approach (CPA) care plans within Child and adolescent mental health services (CAMHS) and identify service user involvement in all aspects of mental healthcare  This includes involving them in a needs assessment, developing and reviewing the care plan; and sharing responsibilities between the patient, carers, and relevant professional agencies.
Aupont et al (2013)	USA	Targeted Child Psychiatric Services that implemented a care model that facilitates adolescent's access to specialised mental health services, investigating whether the adolescent remains in specialised mental health services or returns to paediatric primary care
Simmons et al (2016)	Australia	<i>headspace</i> implemented an online decision aid for adolescent and youth depression was developed. The aim of the intervention was help young people make evidence-informed decisions about their treatment, make them feel involved, adhere to treatment and reduce symptoms, and increase satisfaction
Irvine (2020)	Ireland	Cross-sectional survey of child and adolescents' experiences with mental health care, using quality indicator clusters focussing on (i) information and access; (ii) facilities and services; and (iii) quality of care.

Jager et al (2014)	The Netherlands	In the Take Care study, Client-centred communication (measured using the Consumer Quality Index) affects adolescents participation and learning in their mental healthcare
Stevens et al (2009)	USA	Less intensive Telephone support services (TSS) intervention focussed on services and not symptoms
Anderson et al (2012)	Australia	Body signs, Relaxation, Active helpful thoughts, Victory you're your fears, Enjoy! Reward yourself (BRAVE) for Teenagers-Online project:  Develop working alliance during online cognitive behaviour therapy (CBT) treatment for youth anxiety.
Kapp et al (2017)	Switzerland	Identifying what influenced perceived quality of care (therapeutic alliance) in CAMHS
Cairns et al (2019)	Australia	In <i>headspace</i> services, influence of goal setting frequency and quality on patient retention
Ringle et al (2019)	USA	The Resiliency and Disease Management initiative, or an evidence-based practice that includes Child and Adolescent Texas Recommended Assessment Guidelines, a comprehensive list of service packages that indicates level of service intensity and evidence-based practice (e.g., CBT)
Sattler et al (2019)	USA	Non-profit provider of medical and mental health services  evidence-based assessments
Sattler et al (2016)	USA	Non-profit provider of medical and mental health services  use of evidence-based assessment techniques, including structured interviews, rating scales, DSM-IV-TR and agreement at primary care facilities, general mental health clinics, and specialty clinics for anxiety disorders
Higa-McMilan et al (2017)	USA	Use of Practices derived from the evidence base (PDEB)
Rukundo et al (2020)	Uganda	Two-year diploma programme that focusses on basic training of health care providers (psychiatrists, medical officers, psychologists, psychiatric clinical officers, occupational therapists, psychiatric nurses, general nurses, public health officers, social workers, human resource officers) towards assessing, recognising and managing child and adolescent mental health.
Bardach et al (2020)	USA	Using the Children's Core Set of quality measures for children and adolescents that have used mental health services

Acronyms: Trauma focussed cognitive behavioural therapy (TF-CBT); randomized controlled trial (RCT); Supported Discharge Service Versus Inpatient Care Evaluation (SITE); emergency department (ED); Child and adolescent mental health services (CAMHS); Care programme approach (CPA); Telephone support service (TSS); Body signs, Relaxation, Active helpful thoughts, Victory over your fears, Enjoy! Reward yourself (BRAVE); The Choice and Partnership Approach (CAPA); Practices derived from the evidence base (PDEB); Managing and Adapting Practice (MAP); Practices derived from the evidence base (PDEB)

## Annex 6. Participant information sheet and consent form in English

### **FACULTY OF MEDICINE OF THE UNIVERSITY OF SÃO PAULO FREE AND CLARIFIED CONSENT FORM Mental Health Professionals RESEARCH DATA**

TITLE OF THE RESEARCH PROTOCOL: Community Violence and Adolescent Mental Health in the Municipality of São Paulo  
RESPONSIBLE RESEARCHER: Maria Fernanda Peres  
POSITION/FUNCTION: PhD Professor - Department of Preventive Medicine/FMUSP  
RESEARCH RISK ASSESSMENT: MINIMUM RISK  
RESEARCH DURATION: 1 year.

We would like to invite you to participate in a project entitled “Community Violence and Adolescent Mental Health in the Municipality of São Paulo”.

This study is a research project that aims to identify conflict situations such as fights, arguments, threats and others that can occur between adolescents, and to investigate the effect of these experiences on the mental health of adolescents. Your participation in this research is voluntary and will only take place through your response to a semi-structured questionnaire. The semi-structured interview contains questions about your experiences and perceptions of providing services to adolescents with mental health disorders.

None of the questions pose a risk to you, your health or people you know. If any question makes you uncomfortable, you can choose not to answer the question or stop responding. If you feel the need, due to discomfort caused by answering questions, you are entitled to seek assistance. There is no direct benefit to you from participating in the project. The project results will be useful in developing service actions to address adolescent mental health disorders in highly violent neighborhoods, which could benefit the health system as a whole.

Your interview will be recorded and transcribed, but your name and identification will not be placed on the material. The audio file will be destroyed after transcription of the interview. Only authorized researchers will have access to the material, which will be stored in password-protected files. Any references that make the participant or anyone described as part of the interview identifiable will be deleted. All the answers given in this interview will be analyzed together with other professionals selected for this component of the project. No data identifying you or the service where you work will be released, thus guaranteeing anonymity and confidentiality. The information collected will only be used for this research and may be published or presented at academic or scientific events, combining responses and never including identifiers of the respondent or the service. The results will be presented and discussed with network professionals at the end of the project and will be used to support the formulation of recommendations about measures and interventions to address mental health disorders in adolescents among those exposed to violence, as well as a training module for network professionals. Each of the services that participated in this survey will receive a report with all the results.

As your participation in this research is voluntary, you can withdraw your consent and discontinue your participation in this study at any time, without

experiencing any kind of prejudice. There will be no personal expenses, nor will there be any financial compensation related to your participation in this study.

If you agree to participate, the interview should take approximately one hour. I will ask you prepared questions as part of this project. During the interview, no one will enter the room and, if this occurs, we will stop the interview immediately.

At any stage of the study, you will have access to the professionals responsible for the research to clarify any doubts. The main researcher is Prof. Maria Fernanda Peres, who can be found at Av Dr. Arnaldo, 455, Departamento de Medicina Preventiva, sala 2177, Telephone(s) 30618278. You can also contact the Research Ethics Committee of the Faculty of Medicine from USP (CEP). The CEP of the Faculty of Medicine of USP evaluates and monitors the research projects that are carried out by professors and researchers of the Faculty of Medicine of USP. , FAX: 3061-8004- E-mail: cep.fmusp@hcnnet.usp.br. It is responsible for decisions on the ethics of research to be carried out at the institution, in order to guarantee and protect the integrity and rights of volunteer participants. In addition, you can ask the National Ethics Commission (CONEP) for clarification. CONEP evaluates ethical aspects of research that has foreign participation, as is the case of this research, which is being carried out in partnership with a university in the United Kingdom (University College London). CONEP is located in Brasília, in the Federal District. The address is: SEPN 510 North, Block A, 3rd Floor of the Ex-INAN Building – Unit II – Ministry of Health, CEP: 70750-521, Brasília, Distrito Federal. CONEP's phone number is (61) 3315-5878. CONEP is open from 8 am to 7 pm. E-mail: conep.cep@saude.gov.br. We also guarantee that you will have access to the research results whenever you want, at Av. Dr. Arnaldo, 455, Department of Preventive Medicine, sala 2177, Phone(s) 30618278, or by email: marcostoffoli@gmail.com.

Please keep a record of this consent form. Read this document and, if you agree to participate, type your names, initials or digital signatures into the Word document and send it back to the interviewer. Before starting the scheduled interview, confirm that you have read the consent form and agree to participate in the study.

## CONSENT

I discussed with the USP research team about my decision to participate in this study. I believe that I have been sufficiently informed about the information I read or read to me, describing the study "Community Violence and Adolescent Mental Health in the Municipality of São Paulo" to be carried out, as well as discomforts and risks, the guarantee of confidentiality. It was also clear that I will not incur any expenses to participate and that I may withdraw my consent at any time, before or during the interview, without penalty or prejudice or loss of any benefit that I may have acquired.

Date: \_\_/\_\_/\_\_

\_\_\_\_\_  
Professional signature

INTERVIEWER

I declare that I have properly and voluntarily obtained the Free and Informed Consent from this patient or legal representative to participate in this study.

Date: \_\_/\_\_\_\_/\_\_\_\_

\_\_\_\_\_  
Interviewer's Signature

## Annex 7. Semi-Structured Interview Topic Guides (English)

### Semi-Structured Topic Guide for GPs and Nurses at the BHU

1. What is your role? What are you responsible for? What services do you provide to adolescents with mental health conditions?
2. Could you tell me about your academic background and professional trajectory? Have you worked with adolescents in the past? Have you had training opportunities on adolescent mental health?
  - a. *EXPLORE: [If they received training]:* What do you think of these training opportunities?
  - b. *EXPLORE: [If they haven't received training],* Would this be something useful to you?
3. How do you perceive the socioeconomic, educational and cultural profile of adolescents who seek mental health services at the BHU?
  - a. *EXPLORE:* To investigate how this possible social and cultural distance influences adolescents' access to services and their relationship with professionals and with the quality of the service.
4. What are the common emotional, psychological, psychiatric or mental diagnoses that you see in your daily work with adolescents here at the BHU?
  - a. *Specific examples (if necessary):* For example, depression, anxiety, alcohol or drug abuse, fighting, robbery
5. Do you receive cases involving violence perpetration or victimisation? Do adolescents who seek services experience issues related to violence? In what context? What do they discuss? Do you investigate the presence of violence in the cases you attend? How do you respond to these cases generally? What kind of response to violence do you think adolescents expect from the service?
  - a. *EXPLORE:* What do you think about the response of the mental health service when approaching adolescents exposed to violence? How does violence in families and communities affect service response? Do you feel prepared to deal with cases involving violence?  
*Specific examples (if necessary):* types of violence: bullying, robbing someone with a firearm, physical or sexual abuse
6. What are the main difficulties and facilitators that you've identified in your work with adolescents who have mental health problems here? What aspects of the service should be modified so as to improve adolescent mental health?
  - a. *EXPLORE:* How do these challenges make you feel?
    - *Explore the challenges that health professionals face in providing mental health services to adolescents. These challenges can be related to lack of resources, training, central support, intersectoral network, security, etc.*
    - *Explore the opportunities that health professionals have in providing mental health services to adolescents.*



7. How do adolescents usually access services? Do you think these services are effectively reaching this group? Which adolescents are the most difficult to reach? Which adolescents are easier to reach?
  - a. *[In cases where they say services are not effectively reaching adolescents]:* Why do you think this is happening? How could this improve?
    - o *Specific examples (if necessary):* For example, if they are effectively reaching teenagers: who are they and what are the mental health problems that they are going to seek mental health services.
  
8. Have you noticed any changes related to the COVID-19 pandemic in adolescents' seeking mental health care, and in the presentation of cases to the services?
  - a. *[IF YES]* Are the services prepared to respond to adolescents with mental health disorders during the pandemic? How are services responding to adolescents with mental health disorders?
  - b. Are you using any methods to contact adolescents with mental health problems? If yes, what? Do you think these methods are working, or are you not reaching all adolescents?
 

*Specific examples of methods (if necessary):* For example, are you calling adolescents or having virtual meetings?
  
9. How do you define quality in adolescent mental health services?
  - c. *[After they define, ask]:*How does this definition relate to the mental health services offered to adolescents here at UBS?
  - d. Do you believe that quality is a priority within the service goals? What goals are prioritized and what do you need to achieve in the service?
  - e. What do you think about the quality of mental health services when adolescents live in difficult and unstable environments? Is it important to focus on quality or would access and coverage be more important?
  
10. Does the health service implement any protocols or policies specifically designed to help or support adolescents with mental health problems? Which one?
  - a. *EXPLORE:* If there are no protocols: Do you think it would be useful to have a protocol?
 

*Specific examples (if necessary):* For example, a type of therapy recommended to use for adolescents.
  
11. What proportion of adolescents do you think miss subsequent appointments, do not adhere to treatments, and do not follow referrals? (It doesn't have to be an accurate estimate, just your perception). In your opinion, what is the profile of adolescents who tend to miss appointments and do not adhere to treatments and referrals?
  - a. *[After the answer, ask]:* Why do you think they miss subsequent appointments, don't adhere to treatments, and don't follow referrals?
  
12. What service actions or strategies do adolescents seem to be more likely to adopt or react well to, towards improving their mental health? How do these actions or strategies address the adolescent's mental health needs?

- a. *EXPLORE*: Do you think parents should be involved in strategies or actions to improve their child's mental health? How and why? What would these cases be?
- b. *EXPLORE*: Are there certain cases where parents should not be involved in actions or strategies to improve their child's mental health? Why? What would these cases be?
- c. *EXPLORE*: In cases where you involve parents, what strategies and actions do you use?

*Specific examples (if necessary)*: For example, actions or strategies would be providing psychosocial group activities to adolescents

13. What are the barriers and facilitators to working with other levels of care and sectors in adolescent mental health?
- a. *EXPLORE*: Based on the barriers you mentioned, why do you think they exist?
  - b. *EXPLORE*: Do barriers exist in relation to public resources, disconnected networks, different action paradigms (example: communication between health, justice and education)?
  - c. *EXPLORE*: Are there barriers and facilitators to working with the education sector, justice sector and non-governmental organizations?

#### Semi-Structured Topic Guide for Psychiatrists, Psychologists, Social Workers and Occupational Therapists at BHU (FHSN team members)

1. What is your role? What are you responsible for? What services do you provide to adolescents with mental health problems?
2. Could you tell me about your academic background and professional trajectory? Have you worked with adolescents in the past? Have you had and have opportunities to continue training on adolescent mental health specifically?
  - a. *EXPLORE*: If they received training, what do they think of the training opportunities?
3. How do you perceive the socioeconomic, educational and cultural profile of adolescents who seek mental health services at the BHU?
4. What are the common emotional, psychological, psychiatric, or mental health issues you see in your daily work with adolescents here at BHU?
5. Do you receive cases involving perpetration or victimization of violence? Do adolescents who seek services experience issues related to violence? In what context? What do they discuss? Do you investigate the presence of violence in the cases you attend? How do you respond to these cases generally? What kind of response to violence do you think adolescents expect from the service?
  - a. *EXPLORE*: What do you think about the response of the mental health service when approaching adolescents exposed to violence? How does violence in families and communities affect service response? Do you feel prepared to deal with cases involving violence?

6. What are the main difficulties and facilitators that you've identified in your work with adolescents who have mental health problems here? What aspects of the service should be modified so as to improve adolescent mental health?
  - a. *EXPLORE*: How do these challenges make you feel?
  
7. How do adolescents usually access services? Do you think these services are effectively reaching this group? Which adolescents are the most difficult to reach? Which adolescents are easier to reach?
  - a. [*In cases where they say services are not effectively reaching adolescents*]: Why do you think this is happening? How could this improve?
  
8. Have you noticed any changes related to the COVID-19 pandemic in adolescents' seeking mental health care, and in the presentation of cases to the services?
  - a. [*IF YES*] Are the services prepared to respond to adolescents with mental health disorders during the pandemic? How are services responding to adolescents with mental health disorders?
  - b. Are you using any methods to contact adolescents with mental health problems? If yes, what? Do you think these methods are working, or are you not reaching all adolescents?
  
9. How do you define quality in adolescent mental health services?
  - a. [*After they define, ask*]: How does this definition relate to the mental health services offered to adolescents here at UBS?
  - b. Do you believe that quality is a priority within the service goals? What goals are prioritized and what do you need to achieve in the service?
  - c. What do you think about the quality of mental health services when adolescents live in difficult and unstable environments? Is it important to focus on quality or would access and coverage be more important?
  
10. Does the health service implement any protocols or policies specifically designed to help or support adolescents with mental health problems? Which one?
  - a. *EXPLORE*: If there are no protocols: Do you think it would be useful to have a protocol?
  
11. What proportion of adolescents do you think miss subsequent appointments, do not adhere to treatments, and do not follow referrals? (It doesn't have to be an accurate estimate, just your perception). In your opinion, what is the profile of adolescents who tend to miss appointments and do not adhere to treatments and referrals?
  - a. [*After the answer, ask*]: Why do you think they miss subsequent appointments, don't adhere to treatments, and don't follow referrals?
  
12. What service actions or strategies do adolescents seem to be more likely to adopt or react well to, towards improving their mental health? How do these actions or strategies address the adolescent's mental health needs?
  - a. *EXPLORE*: Do you think parents should be involved in strategies or actions to improve their child's mental health? How and why? What would these cases be?

- b. *EXPLORE*: Are there certain cases where parents should not be involved in actions or strategies to improve their child's mental health? Why? What would these cases be?
  - c. *EXPLORE*: In cases where you involve parents, what strategies and actions do you use?
13. What are the barriers and facilitators to working with other levels of care and sectors in adolescent mental health?
- a. *EXPLORE*: Based on the barriers you mentioned, why do you think they exist?
  - b. *EXPLORE*: Do barriers exist in relation to public resources, disconnected networks, different action paradigms (example: communication between health, justice and education)?
  - c. *EXPLORE*: Are there barriers and facilitators to working with the education sector, justice sector and non-governmental organizations?
14. Do you know what Post-Traumatic Stress Disorder is?
- a. *IF YES*, do you consider PTSD common in cases of adolescents exposed to community-based violence? Have you made this diagnosis?
    - i. [*If they say yes, ask*]: Could you give us a real-life example of a case where you diagnosed PTSD due to community violence?
  - b. *IF NO*, is PTSD useful and applicable within your service for adolescents with mental health disorders? Can you think of adolescent service users who would meet this criterion?
    - i. [*If they say yes, ask*]: Could you give us a real example?
15. Do you know what Complex Posttraumatic Stress Disorder (CPTSD) is?
- a. Do you consider CPTSD appropriate for the psychological presentation in cases of adolescents exposed to community-based violence?
  - b. [*If they say yes, ask*]: Is this applicable to your service? Could you give us a real example of a case where you diagnosed CPTSD due to community violence?

### Semi-Structured Topic Guide for PCCca Providers

1. What is your role? What are you responsible for? What services do you provide to adolescents with mental health problems?
2. Could you tell me about your academic background and professional trajectory? Have you worked with adolescents in the past? Have you had and have opportunities to continue training on adolescent mental health specifically?
  - a. *EXPLORE*: If they received training, what do they think of the training opportunities?
  - b. *EXPLORE*: [*If they haven't received training*], Do you think this is something you could benefit from?
3. How do you perceive the socioeconomic, educational and cultural profile of adolescents who seek mental health services at the PCCca?

4. What are the common emotional, psychological, psychiatric, or mental health issues you see in your daily work with adolescents here at BHU?
  - a. *Specific examples (if necessary)*: For example, depression, anxiety, alcohol or drug abuse
5. Do you receive cases involving perpetration or victimization of violence? Do adolescents who seek services experience issues related to violence? In what context? What do they discuss? Do you investigate the presence of violence in the cases you attend? How do you respond to these cases generally? What kind of response to violence do you think adolescents expect from the service?
  - b. EXPLORE: What do you think about the response of the mental health service when approaching adolescents exposed to violence? How does violence in families and communities affect service response? Do you feel prepared to deal with cases involving violence?
  - c. *Specific examples (if necessary)*: types of violence: bullying, robbery with a firearm, physical or sexual abuse
6. What are the main difficulties and facilitators that you've identified in your work with adolescents who have mental health problems here? What aspects of the service should be modified so as to improve adolescent mental health?
  - a. EXPLORE: How do these challenges make you feel?
7. How do adolescents usually access services? Do you think these services are effectively reaching this group? Which adolescents are the most difficult to reach? Which adolescents are easier to reach?
  - d. *[In cases where they say services are not effectively reaching adolescents]*: Why do you think this is happening? How could this improve?
    - o *Specific examples (if necessary)*: For example, if they are effectively reaching adolescents: who they are and what are the mental health problems that seeking mental health services for.
8. Have you noticed any changes related to the COVID-19 pandemic in adolescents' seeking mental health care, and in the presentation of cases to the services?
  - e. *[IF YES]* Are the services prepared to respond to adolescents with mental health disorders during the pandemic? How are services responding to adolescents with mental health disorders?
  - f. Are you using any methods to contact adolescents with mental health problems? If yes, what? Do you think these methods are working, or are you not reaching all adolescents?
    - o *Specific examples of methods (if necessary)*: For example, are you calling adolescents or holding virtual meetings?
9. How do you define quality in adolescent mental health services?
  - a. *[After they define, ask]*: How does this definition relate to the mental health services offered to adolescents here at PCCca?

- b. Do you believe that quality is a priority within the service goals? What goals are prioritized and what do you need to achieve in the service?
  - c. What do you think about the quality of mental health services when adolescents live in difficult and unstable environments? Is it important to focus on quality or would access and coverage be more important?
10. Does the PCCca implement any protocols or policies specifically designed to help or support adolescents with mental health problems? Which one?
- g. *EXPLORE*: What protocol or policy does PCCca implement, designed to help or support adolescents with mental health problems?
  - h. *EXPLORE*: Do you perceive any barrier or difficulty in implementing these protocols? If so, how would this be improved?
11. What proportion of adolescents do you think miss subsequent appointments, do not adhere to treatments, and do not follow referrals? (It doesn't have to be an accurate estimate, just your perception). In your opinion, what is the profile of adolescents who tend to miss appointments and do not adhere to treatments and referrals?
- i. [*After the answer, ask*]: Why do you think they miss subsequent appointments, don't adhere to treatments, and don't follow referrals?
12. What service actions or strategies do adolescents seem to be more likely to adopt or react well to, towards improving their mental health? How do these actions or strategies address the adolescent's mental health needs?
- a. *EXPLORE*: Do you think parents should be involved in strategies or actions to improve their child's mental health? How and why? What would these cases be?
  - b. *EXPLORE*: Are there certain cases where parents should not be involved in actions or strategies to improve their child's mental health? Why? What would these cases be?
  - c. *EXPLORE*: In cases where you involve parents, what strategies and actions do you use?
13. What are the barriers and facilitators to working with other levels of care and sectors in adolescent mental health?
- a. *EXPLORE*: Based on the barriers you mentioned, why do you think they exist?
  - b. *EXPLORE*: Do barriers exist in relation to public resources, disconnected networks, different action paradigms (example: communication between health, justice and education)?
  - c. *EXPLORE*: Are there barriers and facilitators to working with the education sector, justice sector and non-governmental organizations?

## Annex 8. Coding Frame

### THEMES SUMMARY

QUALITY	Social determinants perspective on adolescent mental health
	Trained, multidisciplinary workforce
	Person-centred care
BARRIERS	Neglect of the adolescent by the health system
	Social and environmental context
ENABLERS	Spontaneous demand
	Approaches to care

	Code	Definition
QUALITY	<b><i>SOCIAL DETERMINANTS PERSPECTIVE ON ADOLESCENT MENTAL HEALTH</i></b>	
	Activities and services in the community	Participants described culture, leisure activities and services in the community as quality within adolescent mental health services
	Current and future prospects	Participants described increasing social capital, skills and labour opportunities– both current and future - as quality within adolescent mental health services
	Intersectoral actions in community	Participants described intersectoral collaboration on outreach community activities as quality within adolescent mental health services
	Case-by-case therapeutic plans	Participants described developing therapeutic plans outside the remit of work plan and health facility resources
	<b><i>TRAINED, MULTIDISCIPLINARY WORKFORCE</i></b>	
	Valuing different perspectives	Participants described the importance of having multidisciplinary perspectives when engaging and treating adolescents, as part of quality mental health care
	Collaboration on service and network challenges	Participants described working with colleagues to trouble-shoot service and network challenges as quality in adolescent mental health care
	Exchanging ideas and learning	Participants described learning from each other as quality with mental health services
	Comprehensive therapeutic care plans	Participants described the importance of developing, implementing and monitoring comprehensive therapeutic plans as quality in adolescent mental health services
	<b><i>PERSON-CENTRED CARE</i></b>	
	Adherence	Participants described adolescents as following and maintaining treatment as quality in adolescent mental health services

	Continuity of care	Participants described quality as long-term mental health care
	Improved outcomes and integration into society	Participants described quality mental health care as not only leading to improved mental health outcomes but also being able to function within society
	Developing a bond with the adolescent	Participants defined quality as listening to the adolescent, taking care of them, and ensuring a feeling of safety, equal partners in the relationship
	Confidential services	Participants defined quality as confidentiality or a concern of adolescents and that nothing would be shared with parents or families, unless approved by adolescent
	Ample consultation time	Participants described quality as ensuring the adolescent communicated what they wanted, providing time for care and treatment
<b>BARRIERS</b>	<b><i>NEGLECT OF THE ADOLESCENT BY THE HEALTH SYSTEM</i></b>	
	Not prioritised within the system	Participants described adolescents being left off of the health service agenda
	Limited human and financial resources	Participants described the lack of human and financial resources for adolescent mental health as challenges to quality
	Historical priorities of the UHS	Participants described the prioritisation of mothers, children, NCDs and older people as priorities
	Lack of strategies, approaches, targeted actions	Participants described being unsure of how to provide quality care to adolescents due to a lack of strategies, approaches and targeted actions
	Lack of physical infrastructure within facilities	Participants described not having physical space for adolescent mental health services
	One PCCca in the region	Participants described having one PCCca as a barrier to the provision of services within the territory
	No outreach services	Participants described the lack of activities within the community as barriers to quality in adolescent mental health services
	Lack of prevention	Participants described a lack of efforts to prevent the onset of mental health conditions
	Unstable network support	Participants described overburdened systems, bureaucracy, lack of successful referrals and proper case management: limited communication, training, lack of integration of network as barriers within adolescent mental health care
High demand and low supply	Participants described the amount of adolescent mental health cases and the limited availability of providers as a challenge	



	Lack of training	Participants described feelings of unpreparedness; not having skills to communicate; not being able to provide appropriate support; frustration, helplessness and insecurity
	Lack of available mental health specialists	Participants described the limited hours of FHSN team members as challenges to adolescent mental health services
	Policies	Participants described a lack of policies, as well as inflexibility around policies, as challenges
	Blaming adolescents	Participants described blaming adolescents for not accessing and adhering to adolescent mental health care; negative view of adolescents being rebellious; not patient, trusted or respected authority figures
	<b><i>SOCIAL AND ENVIRONMENTAL CONTEXT</i></b>	
	Lack of parent/family support and involvement	Participants described lack of family/parent support as due to limited education, social vulnerability, cultural norms around mental health and intergenerational transmission of social disadvantage; lack of time to care for adolescents
	Difficult environment	Participants described the environment as a challenge to deliver quality adolescent mental health services, with concerns over safety
	Substance abuse	Participants described the street scheme and use of substances as a challenge to reaching adolescents with substance abuse issues and the provision of quality mental health services
<b>ENABLERS</b>	<b><i>SPONTANEOUS DEMAND</i></b>	
	<b><i>APPROACHES TO CARE</i></b>	
	Group therapy	Participants described implementing activities including theatre, literature, discussions about bullying, self-harm as enablers to care
	Adolescent participation	Participants described the adolescent's participation in the development of therapeutic plan as an enabler to care
	Safety and non-judgement	Participants described creating safe and non-judgemental spaces as approaches to care
	Telemedicine	Participants described using telemedicine as an important approach to care

## Annex 9. Additional Tables of Linear Mixed Effects Models of Exposures to Violence & All Sources of Social Support (Chapter 5)

Table 1. Linear Mixed-Effects Models of Serious Victimization & All Sources of Social Support (weighted).

	Internalising Symptoms				
	Coefficient	SE	95% CI		p-value
Serious Victimization	2.55	0.34	1.90	3.21	<0.001
Positive Parenting	-0.75	0.38	-1.50	0.00	0.050
Parent Involvement	-2.24	0.33	-2.88	-1.59	<0.001
Friend Support	-0.26	0.32	-0.89	0.37	0.420
Teacher Support	0.03	0.34	-0.65	0.70	0.940
Male	-6.18	0.34	-6.85	-5.51	<0.001
Variance (School)	0.46	0.36	0.10	2.11	0.95*
Variance (Student)	46.25	1.56	43.29	49.41	

\*Wald chi-squared statistic using a Bonferroni-type adjustment testing the model's variance components

Table 2. Linear Mixed-Effects Models of Bullied Once Per Week & All Sources of Social Support (weighted).

	Internalising Symptoms				
	Coefficient	SE	95% CI		p-value
Bullied	4.34	0.39	3.57	5.10	<0.001
Positive Parenting	-0.71	0.37	-1.43	0.01	0.050
Parent Involvement	-2.19	0.32	-2.81	-1.57	<0.001
Friend Support	0.03	0.32	-0.61	0.66	0.940
Teacher Support	0.03	0.33	-0.62	0.68	0.930
Male	-5.97	0.34	-6.64	-5.31	<0.001
Variance (School)	0.38	0.36	0.06	2.46	0.93*
Variance (Student)	44.30	1.45	41.54	47.25	

\*Wald chi-squared statistic using a Bonferroni-type adjustment testing the model's variance components

Table 3. Linear Mixed-Effects Models of School violence & All Sources of Social Support (weighted)

	Internalising Symptoms				
	Coefficient	SE	95% CI		p-value
School Violence	0.29	0.03	0.24	0.34	<0.001
Positive Parenting	-0.75	0.35	-1.44	-0.06	0.030
Parent Involvement	-2.16	0.31	-2.77	-1.54	<0.001
Friend Support	-0.42	0.30	-1.02	0.17	0.160
Teacher Support	0.19	0.33	-0.45	0.83	0.560
Male	-5.80	0.34	-6.47	-5.14	<0.001
Variance (School)	0.60	0.39	0.17	2.12	1.00*

Variance (Student)	44.14	1.55	41.21	47.29	
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\*Wald chi-squared statistic using a Bonferroni-type adjustment testing the model's variance components

Table 4. Linear Mixed-Effects Models of Exposure to Community Violence & All Sources of Social Support (weighted).

	Internalising Symptoms				
	Coefficient	SE	95% CI		p-value
Neighbourhood Violence	0.15	0.02	0.12	0.18	<0.001
Positive Parenting	-0.70	0.38	-1.44	0.03	0.060
Parent Involvement	-2.30	0.32	-2.93	-1.67	<0.001
Friend Support	-0.23	0.32	-0.85	0.39	0.480
Teacher Support	0.15	0.33	-0.49	0.79	0.660
Male	-5.97	0.35	-6.65	-5.29	<0.001
Variance (School)	0.58	0.42	0.14	2.39	1.00*
Variance (Student)	45.41	1.48	42.60	48.39	

\*Wald chi-squared statistic using a Bonferroni-type adjustment testing the model's variance components

Across the adjusted models with all sources of social support included, parent involvement and positive parenting were significantly associated with a decrease in internalising symptoms in those exposed to serious victimisation, bullied once per week and exposed to school violence ( $p < 0.05$ ) (tables 11, 13, 15). Parent involvement was significantly associated with a decrease in internalising symptoms in those exposed to community violence ( $p < 0.001$ ) (table 17).