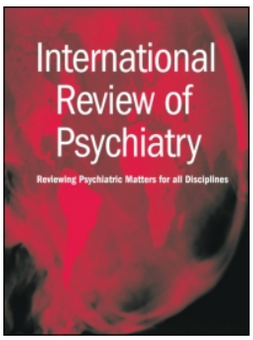

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Tamara Pemovska & Nikolina Jovanović

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Physical health of individuals with psychosis – a mixed method study

Tamara Pemovska[a,b] and Nikolina Jovanović[a]

[a]Wolfson Institute of Population Health, Queen Mary University of London, London, United Kingdom; [b]NIHR Mental Health Policy Research Unit, Division of Psychiatry, University College London, London, United Kingdom

ABSTRACT

People with psychosis have poorer physical health than the general population and this aspect of care delivery has largely been neglected. The IMPULSE trial (ISRCTN 11913964) investigated a psychosocial intervention prompting people with psychosis to discuss their physical health concerns with mental health clinicians. This mixed-method study explored a series of clinical meetings over 6 months to understand how physical health is discussed, what actions are taken, and if these translated into benefits for the participating individuals with psychosis. 221 individuals with psychosis were included, attending 847 clinical meetings over 6 months. Results show that, when prompted, most participants (54%) took up the opportunity to discuss their physical health at least once. These individuals were keen to make changes such as adopt healthy diet, stop smoking, lose weight, etc. Despite taking steps to achieve these goals, after 6 months no improvement was detected in subjective satisfaction with physical health, severity of physical health problems or satisfaction with services. Adopting healthier lifestyle behaviours is difficult even in motivated individuals. Future research is needed to determine innovative approaches to promote lifestyle change in individuals with psychosis.

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Physical health; mental health; mental healthcare; psychosis; schizophrenia

Introduction

People with psychosis live shorter lives by 10–20 years and have poorer physical health than the general population (Correll et al., 2022; Hjorthøj et al., 2017; WHO, 2018). The studies that reveal excess mortality in people with psychosis are largely from high-income countries and the situation in low- and middle-income countries may be even worse (WHO, 2018). Previous research proposes that this difference is caused by clinical risk factors for preventable physical conditions (e.g. cardiovascular diseases, diabetes), together with socioeconomic factors and health system factors, in particular the fragmentation of physical and mental health care (Firth et al., 2019; WHO, 2018). Weight gain due to antipsychotics is a significant determinant of physical morbidity and mortality in people with SMIs, as well as a determinant of non-adherence to therapy and consequent relapse (Ohlsen et al., 2005). Additionally, smoking rates among people with SMIs are higher than in the general population (Lê Cook et al., 2014), and are not following the downward trend seen over the past few decades in the general population (Szatkowski & McNeill, 2015). The increased health risk factors associated with psychosis, which are compounded by the medication used to treat these illnesses, make addressing physical health a particularly pressing need in this clinical population. Standard models of medical physical healthcare are challenging for many people with severe mental health illness and can exacerbate health disparities (Melamed et al., 2019). Previous research has called for adaptations of traditional models and close cooperation between physical and mental health services (Melamed et al., 2019). Nonetheless, globally, the physical health needs of many people with psychosis remain undiscovered and unmet (Carson et al., 2010; Rodgers et al., 2018).

International guidelines suggest physical health monitoring of people with psychosis (NICE, 2018; WHO, 2018). The Lancet Psychiatry Commission on protecting the physical health of people living with mental illness recommended monitoring and addressing physical health and modifiable lifestyle behaviours, such as physical activity, diet and smoking, of this population starting from the earliest point of contact with the mental health service and as part of

CONTACT Nikolina Jovanović n.jovanovic@qmul.ac.uk Wolfson Institute of Population Health, Queen Mary University of London, London, United Kingdom

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routine mental healthcare (Firth et al., 2019). However, robust evidence-base is lacking (Tosh et al, 2014), uptake varies (Carson et al., 2010; Howard & Gamble, 2011) and outcomes are unclear (Ilyas et al., 2017). Research assessing the effectiveness, implementation and sustainability of lifestyle interventions for people with psychosis remains scarce (Firth et al., 2019).

Mental health clinicians can play a crucial part in the improvement of physical health of people with psychosis because mental health care teams are frequently the only contact that people with psychosis have with the health service (de Hert et al., 2011). Psychosis can restrict people's ability to take responsibility for their own health, which further amplifies the obligation of mental health clinicians towards the physical health of their clients (de Hert et al., 2011). Mental health clinicians have been encouraged to monitor physical health of their clients (Carson et al., 2010), and while they are aware of its importance, they may not be adequately trained or have enough resources and may experience unclear role expectations (Butler et al., 2020).

To our knowledge, no prior studies have examined the outcomes of discussing individuals' physical health with mental health clinicians during routine clinical meetings. Overall, very little is known about how mental health professionals monitor and address the physical health needs of their outpatients during clinical meetings, and even less in low- and middle-income countries (LMICs). To overcome the unmet need and reduce the physical health disparities for people with psychosis, we urgently need more robust research evidence that can increase our understanding of how mental health professionals may address physical health concerns of people with psychosis.

A randomised controlled trial, called IMPULSE, was recently conducted to test the implementation and effectiveness of a psychosocial intervention in improving the subjective quality of life of people with psychosis in five Southeast European LMICs (Jovanović et al., 2020). The DIALOG + intervention was implemented during routine mental health clinical meetings and prompted clients to discuss 11 areas of their life, one of them being physical health. If clients raised concerns regarding their physical health, mental health clinicians supported them to think about solutions and actions that could improve their satisfaction with their physical health.

This study analysed the IMPULSE trial data about the frequency and ways in which physical health was addressed within the DIALOG + intervention delivered during routine mental health clinical meetings. The study also aimed to explore whether addressing clients' physical health translated into self-reported physical health benefits and improved satisfaction with the mental health services.

Methods

Study design

This was a secondary analysis of quantitative and qualitative data collected from the intervention arm of the IMPULSE trial (2019–2020), using mixed-method study design. The study analysed mental health clinical meetings where the DIALOG + intervention was implemented four times over 6 months as part of the trial.

The IMPULSE trial investigated the implementation and effectiveness of the DIALOG + intervention compared to routine care of psychosis in five countries (Bosnia and Herzegovina, Kosovo UN Resolution, North Macedonia, Montenegro and Serbia) (Jovanović et al., 2020). DIALOG + is a psychosocial therapeutic intervention where study participants are asked to self-assess their satisfaction with their physical health among ten other life and treatment areas on a 7-point scale, with higher scores indicating higher satisfaction. The assessment was conducted and shown on a tablet, with the option to compare with ratings from previous assessments. Upon reviewing the ratings, participants were encouraged to select an area, such as their physical health, to address in the given meeting, which followed a four-step, solution-focused approach (1-Understanding, 2-Looking forward, 3-Exploring options, 4-Agreeing on actions).

The COVID-19 pandemic and the associated restrictions changed the conduct of the final stage of the trial to be largely done remotely. To get a realistic picture of what is usually done without the effect of the COVID-19 pandemic on people's physical health, the current study focuses on the data collected during baseline and 6 months follow-up assessments that occurred after the completion of four clinical meetings where DIALOG + was used, i.e. during the IMPULSE trial period prior to the pandemic (January 2019–February 2020).

Participants

The participants were people diagnosed with psychotic-spectrum disorders (PSDs) as identified from clinical records (ICD-10 F20–29, F31) from countries

listed above. People were eligible for inclusion if they attended any of the four mental health clinical meetings using the DIALOG + intervention as part of the IMPULSE trial over a period of 6 months. Two participant groups were formed: (A) participants who chose to address their physical health at least once during four mental health clinical meetings using the DIALOG + intervention as part of the IMPULSE trial over a period of 6 months; and (B) participants who never chose to address their physical health during the four mental health clinical meetings. The clinicians delivering the intervention were a variety of mental health professionals (psychiatrists, psychologists and mental health nurses).

Procedure

After obtaining consent, participants were assessed by using the case report form and baseline information was collected. In this study, we reported on the sociodemographic data, psychiatric diagnosis, observed mental health clinical symptoms as measured by the total score of Brief Psychiatric Rating Scale (BPRS, Ventura et al., 1993), self-assessment of physical health as measured by item 15 on the Manchester Short Assessment of Quality of life (MANSA) scale (Priebe et al., 1999) and item 11 on the Recovering Quality of Life (ReQoL) scale (Keetharuth et al., 2018), healthcare usage related to physical health as measured by the Client Service Receipt Inventory (CSRI) (Beecham, 2001), and health service satisfaction as measured by the Client Satisfaction Questionnaire (CSQ-8) (Attkisson & Greenfield, 2004).

Item 15 on the MANSA scale asks about participants' satisfaction with their physical health today, rated on a on a 7-point rating scale, where 1 is 'couldn't be worse' and 7 is 'couldn't be better'. Item 11 on the ReQoL asks about participants' physical health problems (mobility, difficulties caring for oneself, or feeling physically unwell) over the last week, rated on a 5-point scale, where 0 is 'very severe problems' and 4 is 'no problems'. The CSQ-8 is a –item instrument assessing participants' satisfaction with the services they have received. Each item is rated on a 4-point scale, where 1 is 'poor' and 4 is 'excellent'. The scores of each item are summed together to calculate the total CSQ-8 score.

After each scheduled intervention session, clinicians were asked to report on the occurrence of the session and its duration. Data regarding the areas addressed during the meeting and the activities set to be completed before the next one, were collected via a survey from the tablets used for the DIALOG + intervention and the mental health clinicians delivering the intervention, after each clinical meeting as part of the IMPULSE trial. At 6 months follow-up, participants were assessed using the same measures as in the baseline data collection.

Data analysis

The study included secondary descriptive and content analyses. We conducted descriptive statistics of sociodemographic variables, type of diagnosis, mental health symptoms and healthcare usage related to physical health. We compared the participants' characteristics between the two groups (i.e., physical health discussion and no physical health discussion), to explore potential differences. Descriptive quantitative analysis was used to describe the selection frequency of 'physical health' area during DIALOG + sessions. Conventional content analysis (Hsieh & Shannon, 2005) was used to analyse the action item data related to the area 'physical health'. Familiarisation of the data was done, followed by open coding and determining preliminary list of codes and key categories related to: (a) person to whom the actions is assigned; and (b) type of action. The coded data was reviewed until no other changes of the coding list were necessary. Main categories and their frequencies are presented in the findings. Continuity of actions across clinical meetings for people that discussed their physical health over three or more clinical meetings was also explored to determine if behavioural change occurred towards solving participant's physical health concerns raised during the mental health clinical meetings.

To explore associations, we conducted regression analyses where the dependent variables were self-reported severity of physical health problems (ordinal variable), satisfaction with physical health (ordinal variable) and satisfaction with the mental health services (continuous variable) at 6 months, adjusted for age (continuous variable), gender (dichotomous variable), satisfaction with physical health at baseline (ordinal variable), contact with specialist doctor for physical health (dichotomous variable), and the dependent variable at baseline. The independent variable was addressing participant's physical health at least once during four clinical meetings (dichotomous variable). We conducted a multiple linear regression for the continuous dependent variable (satisfaction with the mental health services as measured by the total score of the CSQ-8 scale). Multiple ordinal

regressions were conducted for ordinal dependent variables (self-reported severity of physical health problems and satisfaction with physical health as measured by one item in MANSA and ReQoL-10). The regression analyses used a between-groups design, comparing participants who chose with those who did not choose the option to address their physical health at least once over four clinical meetings during a period of 6 months. The mean difference in outcomes between groups was determined as outcome at 6 months in participants who discussed minus the outcome at 6 months in those who did not discuss their physical health and presented along with the resultant confidence intervals while adjusting for covariates. All analyses were conducted using Excel 2016 and SPSS version 28.0 statistical software.

Results

Discussing physical health

We explored a series of clinical meetings to understand how physical health is discussed, what actions are taken, and if these translated into any benefits for the participants.

In total 221 individuals were recruited and attended 847 clinical meetings over 6 months. Of these, 120 (54%) participants took up the opportunity to address their physical health at least once during 201 (24%) of the intervention sessions (Tables 1 and 2).

Overall, at baseline participants tended to be single, having a high school education or less, unemployed, living with someone, with duration of psychosis of around 11 years, experiencing markedly severe mental health symptoms, self-reporting slight physical health symptoms and being mixed to mostly satisfied with their physical health (Tables 1 and 5).

Table 2. Selection frequency of choosing the option to address participant's physical health.

Clinical meetings	Number of participants attending	Number of participants choosing to discuss their physical health
1st meeting	221	30 (14%)
2nd meeting	211	59 (28%)
3rd meeting	209	53 (25%)
4th meeting	206	59 (29%)

Table 1. Participants' demographics, diagnosis, mental health symptoms and medical history.

Country	All participants ($N = 221$)	Physical health discussion ($n = 120$)	No physical health discussion ($n = 101$)	Summary statistics*
Bosnia and Herzegovina	$n = 40$ (18%)	$n = 24$ (20%)	$n = 16$ (16%)	$\chi(4) = 3.653$, $p = 0.455$
Kosovo UN Resolution	$n = 50$ (23%)	$n = 25$ (21%)	$n = 25$ (25%)	
North Macedonia	$n = 41$ (19%)	$n = 22$ (18%)	$n = 19$ (19%)	
Montenegro	$n = 53$ (24%)	$n = 25$ (21%)	$n = 28$ (28%)	
Serbia	$n = 37$ (17%)	$n = 24$ (20%)	$n = 13$ (13%)	
Age (years)	44.78 (10.98), ($n = 221$)	46 (11.66), ($n = 120$)	43.33 (9.97), ($n = 101$)	$p = 0.071$
Gender				
Female	$n = 97$ (44%)	$n = 61$ (51%)	$n = 36$ (36%)	$\chi(1) = 5.138$, $p = 0.023$
Male	$n = 124$ (56%)	$n = 59$ (49%)	$n = 65$ (64%)	
Marital status				
Single (not in a relationship/separated or divorced/widow(er))	$n = 159$ (72%)	$n = 84$ (70%)	$n = 75$ (47%)	$\chi(1) = 0.492$, $p = 0.483$
Married/Co-habiting/Civil partnership/Any partnership	$n = 62$ (28%)	$n = 36$ (30%)	$n = 26$ (42%)	
Children				
No	$n = 132$ (60%)	$n = 69$ (58%)	$n = 63$ (62%)	$\chi(1) = 0.853$, $p = 0.356$
Yes	$n = 87$ (39%)	$n = 51$ (43%)	$n = 36$ (36%)	
Education				
High school or less	$n = 178$ (81%)	$n = 94$ (78%)	$n = 84$ (83%)	$\chi(1) = 0.440$, $p = 0.507$
University or more	$n = 41$ (19%)	$n = 24$ (20%)	$n = 17$ (17%)	
Age at leaving full time education (years)	18 [17-19], ($n = 219$)	18 [17-20], ($n = 119$)	18 [17-19], ($n = 100$)	$p = 0.300$
Employment				
Employed	$n = 30$ (14%)	$n = 16$ (13%)	$n = 14$ (14%)	$\chi(1) = 0.015$, $p = 0.902$
Unemployed (including retired)	$n = 187$ (85%)	$n = 102$ (85%)	$n = 85$ (84%)	
Living situation				
Living alone	$n = 29$ (13%)	$n = 12$ (10%)	$n = 17$ (17%)	$\chi(1) = 2.245$, $p = 0.134$
Living with someone	$n = 192$ (87%)	$n = 108$ (90%)	$n = 84$ (83%)	
Residence (Yes)	100% ($n = 221$)	100% ($n = 120$)	$n = 101$ (100%)	
Diagnosis				
F2 spectrum	$n = 198$ (90%)	$n = 105$ (88%)	$n = 93$ (92%)	$p = 0.500$
F3 spectrum	$n = 23$ (10%)	$n = 15$ (13%)	$n = 8$ (8%)	
Observed mental health clinical symptoms (BPRS)	41 [33–49] ($n = 219$)	42 [32–49] ($n = 119$)	41 [33–50] ($n = 100$)	$p = 0.917$
Duration of illness (years)	11.36 [6–18] ($n = 196$)	11 [6–19], ($n = 111$)	13 [6–18], ($n = 85$)	$p = 0.872$
Contact with GP in the past 6 months (Yes)	$n = 159$ (72%)	$n = 91$ (76%)	$n = 68$ (67%)	$\chi(1) = 1.966$, $p = 0.161$
Contact with specialist doctor for physical health in the past 6 months (Yes)	$n = 55$ (28%)	$n = 36$ (30%)	$n = 19$ (19%)	$\chi(1) = 3.672$, $p = 0.055$

Summary statistics are: number (column percentage); mean (SD); median [inter-quartile range]. *Calculated through Chi-Square; Independent-samples t test; Nonparametric independent sample tests (Mann–Whitney Test). BPRS = Brief Psychiatric Rating Scale.

Additionally, of those that took up the opportunity to address their physical health, only four participants reported being admitted to hospital for physical health reasons in the past 6 months, compared to none of the participants who did not take up this opportunity.

On average, the participants chose the option to address their physical health over 1.68 (0.83) clinical meetings. 53% ($n = 64/120$) took up this opportunity during only one clinical meeting, 28% (34/120) during two, 16% ($n = 19/120$) during three, and 3% ($n = 3/120$) during all four clinical meetings.

Moreover, 41 mental health clinicians participated in the clinical meetings. 81% ($n = 33$) of them were female. The average age of the clinicians was 44.78 (7.95) years. 59% ($n = 24$) of the clinicians were psychiatrists, 24% ($n = 10$) were nurses, 7% ($n = 3$) were psychologists, 5% ($n = 2$) were medical trainees, and 5% ($n = 2$) were social workers.

Table 3. Selection frequency of the categories of actions relating to the participants' physical health, and the person who was responsible for them.

Categories of agreed actions regarding participants' physical health	Number of actions (N = 345)
Participants responsible	281 (81%)
Maintaining an optimal level of physical activity	91 (32%)
Scheduling/attending doctor's appointment for physical health reasons	73 (26%)
Keeping a healthy diet	44 (16%)
Considering/undergoing/adhering to physical health treatment and supplements	27 (10%)
Undergoing physical health monitoring[a]	20 (6%)
Smoking cessation	18 (5%)
Losing weight	6 (2%)
Improving sleep schedule	2 (1%)
Clinicians responsible	38 (11%)
Providing general support/encouragement, advice & practical help	27 (71%)
Recommending or referring to a specialist doctor/GP[b]	11 (29%)
Other responsible (e.g. family member or friend)	26 (8%)
Providing general support/encouragement and practical help	26 (100%)

[a]For example blood pressure measurements, blood tests etc. [b]Excluding mental health specialist.

Actions agreed during mental health meetings related to participant's physical health

During the 201 mental health clinical meetings where DIALOG + was implemented as part of the IMPULSE trial, 345 actions related to participant's physical health were identified. The majority of those were the responsibility of the participants themselves ($n = 281$, 81%), with clinicians being responsible for 11% ($n = 38$) of the agreed actions and others, such as family members or friends, being responsible for 8% ($n = 26$) of them.

The content analysis yielded 11 types of activities related to participants' physical health that were agreed during mental health clinical meetings where DIALOG + was implemented as part of the IMPULSE trial (Table 3). Direct quotes of the actions agreed within each category are shown in Table 4.

Furthermore, we were able to see continuity of actions across clinical meetings, e.g. participant requiring breast examination was repeatedly encouraged to engage with services. As a result, the participant completed breast ultrasound, followed by biopsy, and was to inform the clinician about test results. Supplement file 1 illustrates clinical examples where mental health professionals provided continuous support to produce behavioural change towards solving participant's physical health concerns.

Benefits of discussing participants' physical health during mental health clinical meetings

Without any adjustments, the Mann–Whitney U-test showed that both subjective satisfaction with physical health and the subjective severity of symptoms at 6 months was statistically significantly worse among participants who opted to discuss their physical health at least once during the mental health clinical meetings compared with those who did not have those discussions ($U = 4104.5$, $p = 0.007$; $U = 4020$, $p = 0.003$, respectively). The Mann-Whitney U Test showed no difference between the participant groups regarding their satisfaction with the mental health services they used.

Table 5 shows adjusted comparisons of the two groups at 6 months in terms of self-reported physical health outcomes (MANSA physical health and ReQoL physical health) and satisfaction with mental health services (CSQ-8 total score). There was a statistically significant difference between groups regarding the ReQoL physical health score after adjusting for the effects of the outcome value at baseline, participants' gender and age, contact with specialist doctor for physical health and satisfaction with physical health at baseline. At 6 months, ReQoL physical health score was significantly lower (reflecting higher severity of physical health problems) in the group of participants who chose to discuss their physical health during the clinical meetings ($p = 0.05$). After adjusting for the effects of the outcome value at baseline, participants' gender and age, contact with specialist doctor for physical health and satisfaction with physical health at baseline, MANSA physical health and CSQ-8 scores at 6 months were not statistically different between the groups.

Table 4. Examples of actions related to participant's physical health agreed during mental health clinical meetings where DIALOG + was implemented as part of the IMPULSE trial.

Categories of agreed actions regarding participants' physical health	Examples of agreed actions
Participants responsible	
Maintaining an optimal level of physical activity	'easy jogging every second day up to half an hour'; 'The patient will start to take daily strolls'
Scheduling/attending doctor's appointment for physical health reasons	'visit her family doctor and check level of triglyceride'; 'The patient will schedule a visit to the gynaecologist'
Keeping a healthy diet	'Try to reduce consumption of bread and pastries'; 'to write down the food [the patient] eats'
Considering/undergoing/adhering to physical health treatment and supplements	'take vitamin supplements as prescribed by the doctor'; 'Physical health - The patient vows to take the medication on a regular basis'; 'Start taking magnesium to help her with leg spasms;' 'continue physical therapy after dealing with gastrointestinal issues'
Undergoing physical health monitoring[a]	'to follow blood pressure regularly due to pregnancy'; 'Do the blood tests in the Health Care Center'
Smoking cessation	'To lower number of smoked cigarettes for 5 cigarettes less per week'; 'attempt to reduce cigarettes instead of stopping completely'
Losing weight	'lose 3 kg by next visit'
Improving sleep schedule	'Start sleeping at night instead of sleeping at daytime'
Clinicians responsible	
Providing general support/encouragement, advice and practical help	'Clinician will make a proper nutrition plan by the next meeting'; 'the clinician to call [the patient] and remind [the patient] to make the appointment for breast ultrasound'
Recommending or referring to a specialist doctor/GP[b]	'The nurse will recommend the best orthopaedic surgeon'; 'The clinician will help the patient seek out physical healthcare at the family doctor'
(Other responsible (e.g. family member or friend)	
Providing general support/encouragement and practical help	'The husband will support [the patient] to walk more often'; 'Family- will try to smoke less, or not smoke with [the patient]'; '[Patient's] husband will go to the health insurance institution and collect the relevant documentation'

[a]For example blood pressure measurements, blood tests etc. [b]Excluding mental health specialist.

Table 5. Outcomes at baseline and 6 months.

	Physical health discussion		No physical health discussion		Difference[a]	
Outcome	*N*	Mean (SD)	*N*	Mean (SD)	Mean (95% CI)	Statistics
MANSA physical health						
Baseline	120	4.20 (1.95)	101	4.64 (1.78)		
6 months	116	4.55 (1.62)	90	5.12 (1.59)	−0.39 (−0.91, 0.12)	0.14
ReQoL-10 physical health						
Baseline	119	2.65 (1.22)	101	3.11 (1.06)		
6 months	116	2.90 (1.09)	90	3.33 (0.87)	−0.60 (−1.18, −0.01)	0.05
CSQ-8 total						
Baseline	120	27.71 (3.87)	101	27.27 (4.83)		
6 months	116	28.58 (3.48)	90	28.70 (3.81)	0.30 (−0.61, 1.20)	0.52

[a]Differences calculated as outcomes for 'physical health discussion' group minus values for 'no physical health discussion group. Differences adjusted for outcome values at baseline, participants' gender and age, contact with specialist doctor for physical health and participants' satisfaction with physical health at baseline.

Discussion

This study yielded findings from both qualitative and quantitative methods providing an increased understanding of how physical health of people with psychosis was addressed during routine mental health clinical meetings where DIALOG + was implemented as part of the IMPULSE trial in low- and middle-income countries and if these led to any benefit for the participants. Our study showed that a structured discussion about physical health of individuals with psychosis can be successfully implemented in routine mental health care. The variety of mental health clinicians who supported discussions about participants' physical health indicated the feasibility of such discussions in health services where psychiatrists are scarce. When prompted, physical health concerns were raised during a quarter of the total amount of mental health clinical meetings that took place over a period of 6 months.

Over half of the participants opted for the opportunity to address their physical health concerns and think about solutions and actions to improve their satisfaction with their physical health. The numbers were similar across participants from the five countries of interest. Additionally, the number of participants choosing to discuss their physical health increased by half after the first clinical meeting where the opportunity was offered and remained that way for the rest of the meetings. This indicates the need

for continuous opportunities to discuss participants' physical health and not just ad-hoc, discreet discussions during routine mental health clinical meetings. This finding is supported by a previous study investigating the approaches used by mental health clinicians to assess people's physical symptoms at intake visits in the United States, which showed a high frequency of assessment of physical illness during mental health intake evaluations (Carson et al., 2010). Similarly, Butler and colleagues (2020) showed that people with severe mental illness were motivated to engage with physical health monitoring, who saw their existing therapeutic relationship as an influencing factor of the higher physical health provision by mental health services. This study also reported that physical health awareness among participants was mixed, with few communicating the relationship between mental health conditions and physical health comorbidities (Butler et al., 2020).

The physical health discussions led to an agreement of specific actions to be taken before the next meeting to improve participant's satisfaction with their physical health. The majority of the agreed actions were the participants' responsibility and were related to modifiable behaviours regarding physical activity and engaging with health services for physical health reasons, as well as with diet, somatic monitoring (e.g. blood pressure measurements), smoking, body weight, sleeping, and considering or adhering to therapy. Actions that were the responsibility of clinicians and family members or friends were about supporting this change towards healthier lifestyle behaviours. A previous study also revealed some similar characteristics of the physical health assessments of mental health clinicians during intake visits: 'formulating the contribution of physical conditions in the psychiatric differential diagnosis', 'noting physical side effects of medications', 'adjusting treatment plans', 'encouraging patient contact with primary care providers', and 'promoting physical health care' (Carson et al., 2010). Our results also showed continuity of actions, where successful behaviour change towards addressing participants' physical health concerns was achieved across several consecutive clinical meetings.

At baseline, the two participant groups were found to be statistically different in terms of gender and marginally different with regard to their age and contact with specialist doctor for physical health in the past 6 months. Participants who opted to address their physical health, reported mixed satisfaction with their physical health at baseline [4.20 (SD = 1.95)]. In comparison, the baseline mean score of participants who opted not to address their physical health tended more towards being mostly satisfied with their physical health [4.64 (SD = 1.78)]. Additionally, participants from both groups reported mean scores around having slight problems with their physical health at baseline [2.65 (1.22) for those who discussed and 3.11 (1.06) for those that did not discuss their physical health]. Based on the outcome data at baseline, the participants who chose to discuss their physical health appear to have worse satisfaction with their physical health and higher self-reported severity of physical health problems, which could be seen as an explanation why they chose to discuss their physical health during the DIALOG + sessions. This finding is also supported by another study looking at the scores of subjective satisfaction of physical health using the same scale among 3120 people with schizophrenia-spectrum disorders, which reported a mean score of 4.62 (SD = 1.68) (Petkari et al., 2020), higher than that found among our participants who opted to address their physical health. Additionally, the data suggests that more participants who opted to address their physical health during the meetings contacted a specialist doctor for physical health and were hospitalised for physical health reasons in the 6 months prior to the baseline assessment compared to participants that never opted to address their physical health. During the study period, a trend of improvement was seen among all outcomes (subjective satisfaction with physical health, subjective severity of physical health problems and satisfaction with the mental health services used) across both participant groups.

After 6 months, prior to any adjustments, there was significant discrepancy regarding the outcomes of subjective satisfaction with physical health and severity of physical health problems between the participant groups. However, after adjusting for the effects of the outcome value at baseline, patients' gender, age, contact with specialist doctor for physical health and satisfaction with physical health at baseline, there was no evidence that addressing participant' physical health within the DIALOG + intervention during mental health clinical meetings translates into participants' satisfaction with their physical health, nor their satisfaction with the mental health services used. There was some evidence of statistical significance that addressing people's physical health within the DIALOG + intervention during mental health clinical meetings predicts their self-reported severity of physical health problems after adjusting for the effects of the outcome value at baseline, participants' gender

and age, contact with specialist doctor for physical health and satisfaction with physical health at baseline. Participants who discussed their physical health indicated higher severity of physical health problems at 6 months compared to those that did not discuss their physical health. Thus, addressing physical health concerns by agreeing on specific actions during routine mental health clinical meetings where DIALOG + was implemented was not associated with any improvements regarding subjective satisfaction with physical health, severity of physical health problems or satisfaction with mental health services after 6 months. The short study period, too small of a sample size or inadequate choice of outcomes to measure the effect of these discussions could have contributed to these findings. Additionally, the findings suggest that such discussions could be insufficient to generate a meaningful improvement. Future research is needed to assess the longer-term impact of addressing physical health concerns of people with psychosis using DIALOG + during routine mental health clinical meetings, including structured assessment of change in modifiable lifestyle behaviours that reduce the risk of physical health problems.

Strengths and limitations

Among few studies exploring how physical health is addressed in routine mental health clinical meetings, to our knowledge, this is the first study to investigate how mental health clinicians address the physical health of people with psychosis using the DIALOG + intervention in a low-resource setting and to explore its outcomes. The study included participants from five countries and showed that the number of people with psychosis who took up the opportunity to address their physical health was consistent across the countries, thus confirming the generalisability of results. The mixed-method approach is also a particular strength of this study because it helped to generate a more thorough insight into the physical health discussions during the mental health clinical meetings. The main limitation of the study was its small sample size. Data regarding physical health diagnosis and comorbidities or other objective indicators of physical health were not collected and the self-assessment ratings of satisfaction with physical health taken during each DIALOG + session were not available for analysis, both of which could have been a useful variable to consider.

Clinical implications

Based on this study, the following implications can be made regarding the care of individuals with psychosis. Firstly, mental health clinicians should ask individuals with psychosis about their physical heath during routine mental health appointments. This is because most individuals with psychosis are keen to address their physical health issues and may not have this opportunity elsewhere. Secondly, it is important to repeatedly ask people with psychosis about their physical health concerns, rather than in on-off meeting or on annual basis, as that can increase the number of people who take on this opportunity. Lastly, mental health clinicians can expect to hear from their patients that they want to lose weight, adopt a healthy diet, stop smoking, start attending physical health appointments, etc. Some of these goals can be very ambitious and difficult to achieve without structured and continued external support. Therefore, professionals should be aware of available resources in the community that could be of use to their clients. Or, if resources are limited, professionals can create a local programme and engage family members as volunteers.

Conclusion

People with psychosis experience worse physical health than the general population and addressing the physical health of this clinical population is greatly needed, however poor evidence-base leaves major obstacles in knowing how to do this effectively. Successful management of mental and physical health requires a holistic approach and viewing physical and mental health as separate entities can be damaging to a person's overall wellbeing. The study's findings gave an insight of how things could be if discussion on physical health would be continuously offered during routine mental health clinical meetings. When offered, people with psychosis take up the opportunity to discuss their physical health concerns with their mental health clinician. These discussions can lead to agreement of specific actions that encourage healthier lifestyle of people with psychosis. Continuity of such actions can result in the wanted behaviour change. However, during the study period of 6 months, such actions were not associated with improvements of subjective satisfaction with physical health, severity of physical health problems or satisfaction with mental health services. There is a need for continuous discussions about physical health of people with psychosis during routine mental health clinical meetings, but further research is needed to determine effective ways of doing so.

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The authors report there are no competing interests to declare.

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ORCID

Tamara Pemovska http://orcid.org/0000-0003-4362-0165
Nikolina Jovanović http://orcid.org/0000-0002-7554-9837

Data availability statement

The data that support the findings of this study are available from the author, Dr. Nikolina Jovanović, upon reasonable request.

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