Gone Too Soon: Priorities for Action to Prevent Premature Mortality Associated with Mental Illness and Mental Distress

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Summary

Globally, too many people die prematurely from suicide and the physical comorbidities associated with mental illness and mental distress. The purpose of this paper is to mobilise the translation of evidence into prioritised actions that reduce this inequity. The mental health research charity, MQ Mental Health Research, convened an international panel that used roadmapping methods and review evidence to identify key factors, mechanisms, and solutions for premature mortality across the social-ecological system. We identified 12 key overarching risk factors and mechanisms, with more commonalities than differences across the suicide and physical comorbidities domains. We also identified eighteen actionable solutions across three organising principles: integration of mental and physical health care; prioritisation of prevention while strengthening treatment; and optimisation of intervention synergies across social-ecological levels and the intervention cycle. These solutions included accessible, integrated high quality primary care; early life, workplace, and community-based interventions co-designed by the people they should serve; decriminalisation of suicide and restriction of access to lethal means; stigma reduction; reduction of income, gender and racial inequality; and increased investment. The time to act is now, to rebuild health care systems, leverage changes in funding landscapes, and address the effects of stigma, discrimination, marginalisation, gender violence, and victimisation.

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Introduction

Successful global efforts to reduce mortality from infectious and chronic diseases have increased life expectancy from ~52 years in 1960 to ~72 years in 2020,[1] yet largely have failed to address premature mortality from suicide and from the effects of physical comorbidities associated with mental illness and mental distress.[2] Men and women with any mental illness have shorter life expectancies, by 10·2 and 7·3 years, respectively, compared to those without.[3] The pandemic has exacerbated such disparity.[4] Although the age-standardised suicide rate decreased globally by 36% 2000–2019 and overall did not increase in the context of the pandemic,[5] annually suicide still claims over 703,000 lives and remains among the top 20 causes of death. Importantly, low- and middle-income countries (LMICs) are estimated to bear at least 80% of the mental health and suicide burden.[6] Advances to reduce mortality gaps have been hindered by lack of knowledge, gaps in evidence synthesis, and inadequate implementation exacerbated by the effects of stigma and discrimination.[7]

Suicide and premature deaths from physical comorbidities associated with mental illness often are considered separately, as they tend to differ in time course (acute versus chronic), modes of intervention (prevention versus treatment), and impact (immediate versus cumulative). However, we chose to address both suicide and other premature deaths together to test the presence of overlap in the factors driving each. Indeed, where causes are shared, solutions may leverage synergistic effects for both sources of premature mortality. We also recognise that suicide can occur in the context of mental distress (defined as an individual's self-reported mental health complaints and symptoms) rather than mental illness, an important distinction that draws attention to the social, cultural, biological and psychological risk factors and mechanisms associated with suicide, and risk for mental illness itself.

The purpose of this paper is to mobilise the translation of evidence into prioritised actions to reduce premature mortality, by identifying key causes, gaps in knowledge, and existing or promising solutions. Convergent challenges to human welfare intensify pressing needs to rebuild health care systems, leverage changes in funding landscapes, and address public concern for mental health and the stigma associated with mental illness and suicide.[8,9] The actions outlined here complement the WHO World Mental Health report[10] and extend the WHO Live Life implementation guide on national suicide prevention strategies.[11] Our approach is integrative and pragmatic, seeking out key mechanisms, factors, and solutions which can be delivered efficiently with potentially synergistic benefits. We applied social-

ecological and lifespan developmental frameworks,[12] and emphasised global inclusion and diversity to form an international working group from diverse disciplines and professions and people with varied lived and living experiences (Panel 1). We employed roadmapping methods and a focused review of existing literature to identify key factors, mechanisms, and solutions.[13]

Methods

The S-Plan roadmapping method was used to identify and prioritise factors behind premature mortality in the physical comorbidity and suicide domains as well as existing or promising solutions to tackle them now or in the next 5-10 years.[13,14] The process involved collaboration among a multidisciplinary global team of academic, policy, clinical, lived and living experience experts convened by the mental health research charity, MQ Mental Health Research (Figure 1). First, the Steering Committee (SC) adopted a four-level social-ecological framework (structural, community, relationships, individual), formulated target questions to address in that framework, and developed a worksheet to structure information gathering, discussion, and analysis (Appendix). Then, experts and the SC submitted completed worksheets, and their responses were integrated to identify key themes and cross-cutting factors and solutions in each domain.

In the first online workshop, working groups in each domain discussed the results from the pre-work, and ranked importance of cross-cutting factors. Next, SC members ranked proposed solutions for the top-ranked factors using an impact-feasibility matrix. Impact comprised two criteria, depth (extent of change likely to be realised in medium term (10 years)) and breadth (numbers of people expected to benefit in medium term). Feasibility comprised three criteria, viability (likelihood to succeed at scale across contexts), funding interest (explicit funding sector interest in the type of intervention), and availability (whether established or highly promising evidence-based interventions or practices exist to address the target need). SC members independently scored every solution for each criterion using a 4-point scale (1=lowest, 4=highest). Scores were analysed to derive overall priority ratings for each solution.

The second online workshop involved working groups in each domain that considered and critically refined the top-ranked priority solutions, identifying pathways for roll-out, barriers to implementation, target age groups, and degree of tailoring required for different

populations. Synthesising results revealed solutions to reduce mortality concurrently in both domains. We also selected key papers from publications identified by *Gone Too Soon* workshop participants as important for understanding and preventing premature mortality. Where there were gaps, we searched PubMed and PsycInfo using depression, bipolar disorder, psychosis, schizophrenia and suicide keywords. Primary substance use disorder and dementia were not included. We also conducted a search of review studies published between 1 Jan 2012 and 31 October 2022 using mental illness, mental disorder, suicide, distress, mortality and prevention as keywords. All searches were restricted to the English language.

Multi-level convergence among key risk factors and mechanisms

Twelve key overarching risk factors and mechanisms associated with premature mortality were identified (Figure 2; full list in Appendix). Many factors operated across multiple social-ecological levels. Moreover, we observed extensive overlap across the suicide and physical comorbidities domains, with more commonalities than differences between them. Consequently, we combine these factors in Figure 2 and describe them thematically in the following sections.

Multifactorial nature of risk

Stress-diathesis models emerged as a useful way of embracing the multifactorial nature of risk and identifying pathways from structural or social conditions to both physical comorbidities or suicide.[15,16] Such pathways often comprise psychological factors including feelings of worthlessness, entrapment, defeat, humiliation, shame, burdensomeness or social disconnection associated with marginalisation, poverty, isolation, or hardship.[17,18]

Social determinants, structural inequalities and social context

The critical role of social determinants in premature mortality is widely acknowledged, yet mediating pathways remain understudied. Adopting whole of government and societal approaches are key.[19] Across the lifespan, adverse social determinants of health such as unemployment, economic recessions, lack of meaningful social relationships, lack of access to education, employment and housing, create an environment in which individual risk factors are exacerbated.[20,21] Income inequality and limited financial resources directly affect mental and physical health.[22] People with mental illness are more likely to experience

systematic social exclusion, such as homelessness, which also is associated with premature mortality.[7] Some racial and ethnic minorities experience disparities in the incidence of severe mental illness, and with worse outcomes.[23] A recurrent theme was that social exclusion does not just happen, it is a sequela of socially patterned structural forces.

Hence, social context shapes formations of social isolation, lack of social support, and loneliness. The net effect of reduced social networks, diminished familial and community support, and higher levels of social isolation is to exacerbate mortality risk, both in the general population[24] and particularly in racialised communities and minority ethnic groups.[25] For suicide, social context also comprises volitional factors such as exposure to suicide and access to the means of suicide, which have been proposed as key to understanding the transition from suicidal thoughts to suicidal acts.[18] Exposure to suicide also extends to the media reporting of suicide (e.g., the suicides of celebrities are associated with a 13% increased risk of suicide in the general population).[26] More research is needed about apparent social transmission effects or influences on help-seeking for mental health problems more widely. Counterbalancing some evidence linking social media with suicide risk and poor mental health, especially among vulnerable youth, are its potential protective effects as well as the size of any effect in isolation.[27]

Stigma, marginalisation, racism, and mistrust

Stigma, in all its guises, is a pervasive force that affects many other risk factors for premature mortality.[7] State legislation and policy that actively perpetuate social stigmas and create barriers to accessing mental health care, including the laws in countries that criminalise suicide and suicidal behaviour, are counterproductive and should be repealed.[7,28] As noted elsewhere, stigma and social exclusion more broadly underlie premature mortality from physical comorbidities by limiting help seeking, resources and opportunity, impeding access to close relationships, quality education, housing, healthcare, training and employment.[7] Although psychological and psychiatric approaches for suicide prevention predominate, to be effective, these must be supplemented with socio-political approaches, taking greater account of sociocultural dynamics, recognising the inherent inequalities in who dies prematurely, and considering suicide prevention as a matter of social justice.[29]

Discrimination and racism, acculturative stress, stigma power, colonisation and other structural inequities demand urgent attention as they lead to a wide range of poor health outcomes.[7,30-32] Specific factors that precipitate suicidal behaviour vary across groups and societies although our knowledge about LMICs has many gaps.[30,33] Suicide risk is high across socially vulnerable populations including sexual and gender minorities, some racial and ethnic minority communities (indigenous populations in particular), people with physical and neurodevelopmental disabilities, refugees, immigrants, and prisoners.[28,34-37] The propagation of stigma and discrimination against people with mental illness persists in some healthcare settings, schools, and workplaces and promotes mistrust of mental health services.[7] Arguably, systemic stigma and bias are ingrained in health systems, rendering patients less able effectively to communicate how they are feeling.[38] Furthermore, in some countries, professions and providers in the mental health field are themselves stigmatised.

Individual factors

Traumatic life events, particularly interpersonal events such as childhood or domestic abuse, are major contributory factors in mental illness, mental distress, and suicide.[15,16,39] Psychobiological processes and behaviour play key roles in premature mortality both for physical comorbidities and for suicide.[40] Potential mechanisms behind the relationship between early life trauma and suicide risk range from disrupted attachment patterns [41] to epigenetic effects.[42] Psychological factors such as defeat, humiliation, entrapment, burdensomeness and thwarted belongingness are established correlates of suicide risk which require attention at all levels of the social-ecological framework.[18] Behavioural factors including smoking and substance use, poor sleep,[43] poor diet,[44] and inactivity also pervasively affect mental states and underpin links to physical comorbidities. Religiosity also may be associated with higher suicide risk among sexual and gender minority youth but it is important to note that religion, for others, can be a protective factor.[45] Furthermore, factors linked to the hypothalamic-pituitary-adrenal (HPA) axis and inflammation are implicated in both physical comorbidities and suicide together with vulnerabilities associated with epigenetics and brain metabolites.[46,47] Relatedly, potential roles for gut microbiome and microbial dysbiosis in both sources of premature mortality also are increasing foci for investigation.[48] Recent consortia-driven efforts have begun to identify genetic factors in suicidal behaviour as well as shared genetic influences on mental and physical health comorbidities.[49]

Multimorbidities, alcohol and drug misuse

Co- and multimorbidities are the primary source of premature mortality across the spectrum of mental illnesses but particularly among those with severe mental illness.[50] Compared to the general population, people with mental illness have health-related behaviours that affect mortality risk and experience a higher prevalence of multimorbidities, including chronic conditions (cancers, hypertension, ischaemic heart disease, respiratory health problems, cerebrovascular events, and type 2 diabetes mellitus)[51] and infectious diseases, notably HIV and TB.[52] They also experience comorbidity with alcohol and substance use disorders, as well as tobacco use, which contributes further to earlier mortality.[53]

Associations between antipsychotic medications and mortality in people with mental illness are complex. Overall, antipsychotic medications, when prescribed for approved usages, have been associated with a reduction in all-cause mortality.[54] However, the prescription of certain antipsychotic medications has been linked with sequelae such as type 2 diabetes mellitus and metabolic syndrome which are, in turn, associated with cardiovascular disease.[52,55,56] The benefits versus risks of increased mortality vary by the types of medications, comorbidities and course of the mental illness.[54,57] Limited access to appropriate medication in LMICs contributes to health disparities in the effective treatment of mental illness and associated physical health conditions.

Among others, physical and mental illnesses are known risk factors for suicide. Underlying mental illnesses such as depression, anxiety, bipolar disorder, schizophrenia, borderline personality disorder and eating disorders are established correlates of suicide risk.[16,58] Post-traumatic stress disorder, obsessive compulsive disorder and substance use disorders may be more important in suicide attempts than in suicide ideation.[59] Moreover, people with serious mental illness are much more likely to die by suicide than the general population.[60] Although multimorbidity (physical and mental illness) is associated with suicidal ideation, more research on suicide attempts and suicide is required.

Although opioid abuse and its recent escalation are beyond the scope of this paper, the co-occurrence of substance use and mental illness among adults with opioid use disorder is common and merits urgent attention.

Access to care: silos, fragmentation, gaps, and quality

Systematic underfunding of mental compared to physical health services is a major global problem, as is segmentation of mental and physical health care into silos.[61] Treatment gaps (e.g., availability of, and access to, high quality treatments for major depression) and understaffing are substantial in high income settings and even greater in LMIC settings.[62] Interventions for psychosis in LMICs, for example, cannot simply graft practices from high-income North American and Western European settings onto complex pluralistic care pathways including traditional health practitioners.[63] Deficient access to mental health care at a community level (barriers such as transportation, waiting lists, lack of language and cultural sensitivity), particularly in LMICs, also is associated with suicide mortality.[10,11]

People with mental illness or who are at risk of suicide are more likely to be overlooked and receive poor or no health care at all.[50] In diagnostic overshadowing, healthcare professionals misattribute physical health presentations to an existing mental health condition, which delays people with such conditions from receiving healthcare for their somatic conditions[64] and vice versa. Indeed, diagnostic overshadowing has been linked directly to avoidable deaths[64] and also may be relevant for suicide mortality as suicide risk is underdetected in clinical settings.[65]

The inadequate care provided to people with mental illness also leads to poorer physical health outcomes and premature mortality.[66] Substandard care may take multiple forms, including a lack of adequate screening, lengthy waiting lists related to workforce issues and underinvestment, limited insurance coverage, and a lack of integrated care. What is more, for some physical health conditions, preventative population screening programmes have been implemented successfully in the general population, but less so for people with mental illness.[67] For instance, access to life-saving coronary revascularisation procedures following a cardiac event is reduced in people with diagnosed mental illness, especially schizophrenia.[68] A review of studies from the U.S. found that poor quality care is particularly evident in people diagnosed with mental illness on low incomes and receiving health insurance benefits.[66] Yet even in settings where care provision is 'free' at the point of contact, only modest improvements in physical health outcomes in people with mental illness have been observed.[69]

Actionable Solutions

In this section, we identify 18 solutions across three organising principles and provide examples to tackle multi-level convergence in the sources of premature mortality (Table 1). Best practices for adaptation, refinement and evaluation in applying solutions to different global contexts are evolving.[70,71]

1. Integration of mental and physical health care

Consistent with WHO's world mental health report, the integration of health services emerged as a key overarching principle for reducing premature mortality.[10] However, offering integrated care (i.e., mental healthcare to people within general medical services and physical healthcare for people under the care of mental health services) is challenging. It requires reorganisation of health systems, provider training to inculcate appropriate expertise in both physical and mental health, and nimble systems for referral. Yet integration of health services not only facilitates early detection of both physical and mental health problems and their shared risk factors,[72] but also saves costs and improves care.[10,73] Policy makers need to prioritise such delivery at the level of primary care. This would support prevention efforts such as smoking cessation and vaccination as well as the detection and treatment of infectious and chronic physical health conditions in people experiencing mental distress or illness.[74,75] Evidence of the benefits from integrated care schemes has been encouraging yet inconsistent and differs by setting and country.[76,77] A blueprint for designing and scaling up integrated primary youth mental health care services has shown promise.[78] We recommend that the implementation of such programmes should proceed based on country- or locality-specific priorities and resources.[73]

Task shifting (i.e., moving tasks from highly specialised to less specialised health workers) and cross-training interventions with community health workers can address staff shortages that are particularly acute in LMICs. Widely embraced albeit with mixed results, this approach has been applied successfully in Ethiopia.[79] Multi-country LMIC initiatives also have led to context-adaptable quality improvement tools that enhance competency in suicide screening and harm risk reduction.[70,71] Additionally, cross-training in mental and physical health addresses the problem of diagnostic overshadowing. Importantly, integrated training can combat the pervasive unease, stigma, and bias presently surrounding both suicide and self-harm, and mental illness. Comprehensive community-based programmes that include gatekeeper training, screening and early intervention can effectively reduce youth suicide

risk, particularly in rural communities.[80] Employment of peer workers in community and clinical mental health services improves user outcomes.[81] Indeed, peer-led engagement in innovative research, models of clinical care and support, and prevention should be prioritised.

Care provider training underpinned by lived experience engagement should be considered because it yields improvements in engagement, diagnosis, and treatment.[75] For example, vignette- and picture-based training of health care volunteers at community centres in Nepal increased case identification of mental illness by almost 50%.[82] Integrated care furthermore lowers barriers to early detection and treatment for comorbidities between mental and physical health conditions. For instance, a recent systematic review found that collaborative care reduced depression and improved quality of life in patients who had depression and comorbid diabetes.[77] There also is evidence from South Africa for integrated collaborative care packages for patients with co-existing depressive and alcohol use disorder symptoms.[83] Moreover, interventions in diet and exercise to combat chronic conditions such as obesity or cardiovascular disease can reduce risks to mental health, likely by targeting shared underlying physiological processes (inflammation, blood chemistry, endocrine profiles).[84,85]

2. Prioritisation of prevention while strengthening treatment

Prevention, promoting population mental health, is central to the second organising principle. Many prominent contributory factors to premature mortality are amenable to public health approaches that intervene upstream to decrease risk and improve health trajectories. Indeed, effective interventions exist (poverty reduction, access to education, community safety, accessible health care) which target many of these factors. Fostering appropriate early care and education, such as through home-visiting programmes,[86] also can reduce prevalence of early trauma and enhance healthy cognitive-emotional development.

Regulation of tobacco and alcohol and promotion of adequate nutrition provide synergistic benefits for physical and mental health.[87,88] Taxes on tobacco and alcohol and tobacco-free environment policies are effective preventive measures to reduce consumption of these substances.[89,90] Likewise, public health campaigns about the dangers of tobacco smoking and regulations and restrictions on advertising, packaging, and sales are effective. Indeed, a multi-component school-based health promotion intervention in India to promote adolescent health also offers promise[91], highlighting an important role for early intervention. Cash transfer or food subsidy programmes effectively reduce food insecurity.[92] However, complex interactive

drivers of food insecurity in mental distress as well as eating disorders are especially understudied in LMICs and merit attention; practice guidelines for the latter are available.[93] Healthy workplace initiatives are extending promotion of mental and physical well-being to everyday settings.[94] Likewise, community-based interventions can aid in reducing stigma and remoteness from healthcare for diverse and marginalised groups, tackling health-risking behaviours, and providing social support that fosters well-being across domains, although this area needs more evaluation.[95,96]

Complex cultural-societal factors shape laws and discourse around suicide and mental health; therefore, such factors warrant careful consideration.[97] Nonetheless, restriction of access to lethal means (e.g., firearm regulation, pesticide bans, structural interventions) has been effective globally in suicide prevention, although legal and political barriers to policy implementation require scrutiny.[30,98] Further priorities include both the engagement and regulation of traditional media for suicide prevention and shared responsibility between governments and social media companies to minimise online harms. The impact of decriminalisation of suicide is mixed, although criminalisation has been associated with increased suicide rates, particularly in LMIC and non-Muslim countries.[99] Continued criminal sanctions for suicidal behaviour despite technical decriminalisation, as happens for instance in the UK, must be addressed.[100]

Furthermore, the extent to which mental health and suicidal behaviour interventions are effective in different risk groups (e.g., men vs. women, racial and ethnic minorities) and settings (e.g., LMICs) needs evaluation as a matter of urgency. The scalability and accessibility of evidence-based interventions for suicidal thoughts and behaviours [98] must be prioritised, including psychosocial interventions (e.g., Cognitive Behaviour Therapy, Dialectical Behaviour Therapy, Collaborative Assessment and Management of Suicidality, safety planning) and pharmacotherapy, (e.g., clozapine and lithium).[15,16] Safe prescribing and monitoring are imperative. The role of side effects in suicide risk needs closer inspection, as do effects of medications for mental and physical health conditions (e.g., benzodiazepines and interferon-a,).[101,102] Risks of iatrogenic cognitive deficits (e.g., from ECT) and treatment-emergent suicidal ideation/behaviour (medication-induced akathisia) exist and need to be weighed against the benefits (e.g., rapid/life-saving treatment of ECT for those with severe depression).

Thus, personalised care with targeted mechanisms of action and fewer side effects, is critical. We also need to reach outside of health services, to increase accessibility of psychosocial interventions in community and social services, schools, and workplaces. Compassion must be embedded in all aspects of service provision, and continuity of care for those in suicidal crisis is vital. Interventions also need to be expanded to include factors considered outside the remit of traditional mental health care, including infectious diseases such as HIV-AIDS. For instance, group therapy has been shown to improve both symptoms of depression and adherence to HIV treatment in Uganda.[103]

While prevention is crucial, innovation continues to be needed in detection, diagnosis, and treatment of conditions leading to premature mortality. We need to advance research for personalised medicine approaches (adopting a biopsychosocial standpoint), identify new predictive indicators, and leverage new opportunities in digital technology and big data. This will enable the formulation of more personalised management and treatment plans as will embedding the expertise of people with lived experience across research, innovation and practice. Finally, paying more attention to protective factors is long overdue.

3. Optimisation of intervention synergies across social-ecological levels and the intervention cycle

The third principle addresses the multi-level convergence of factors that drives premature mortality. Such an approach optimises prevention by providing new opportunities to identify synergistic interventions from the individual to the structural levels. For example, societies with priorities and policies that reduce income inequality have populations with better mental and physical health.[104] Targeted income strategies such as cash payments have been found to support brain development, improve mental health, and reduce suicide risk.[105-107] Such strategies also address linkages of poverty, shame, and entrapment to suicide, mental illness, and its comorbidities. They generate society-wide benefits in social cohesion, productivity, and wellness.[104] Moreover, efficiencies realised through integrated health care[108] may help support much needed investment increases in mental health. Relatedly, the impact of interventions directed at reducing stigma, discrimination, and marginalisation as well as gender violence at any level reverberates across the social ecosystem.

Together, the expansion of telehealth since the onset of the pandemic and the emergence of digital innovations (wearable technology, portable apps, remote sensing, e-health

interventions) as novel means to build effective personalised interventions, are opening unprecedented opportunities that should be harnessed to expand access to mental and physical health care. Promising examples include passive sensing via mobile devices to enhance the detection of depression in Nepali mothers.[109] However, ethical protocols for real-time digital monitoring of physical and mental health such as response to acute suicide risk status require consensus.[110,111] It is important, therefore, to proceed tentatively, weighing potential benefits against concerns about privacy, access to technology, and the potential impact of misclassification.

Looking to the future, machine learning analyses of big data incorporating genetic, epigenetic, biochemical, neuroimaging, psychological factors, real-time digital phenotyping, and electronic clinical records hold promise as the next frontier in personalised medicine, prediction of comorbidities and suicide prevention research.[112] Indeed, evidence suggests that modelling trials embedded in routine healthcare records can efficiently test the relative efficacy of intervention options for specific populations (e.g., stratified by polygenic risk).[113] However, once again we urge caution, for algorithms not designed and tested with underrepresented communities have the potential to widen racial disparities.[114,115] In short, we emphasise that ethics, evaluation, contextualisation, and scalability are integral elements in real-world applications of these innovations.[116] Co-designing with people with lived and living experience is essential.

Principles for implementation and change

The success of the proposed solutions will be maximised if action is guided by robust principles for implementation and change. We suggest nine action principles to guide implementation (Figure 3), recognising that enacting many of the priority solutions will require direct participation of those with lived and living experience, policy makers, clinicians, health and technology industries, and the community. We flag the additional intricacies introduced by the complexity of national and local health systems, the need for multiple cultural adaptations, and the nature of mental illness or mental distress.

In our view, the most important element in successful implementation is collaboration of a diverse range of lived and living experiences of mental illness and suicidal behaviour. Placing lived and living experience at the centre of the implementation cycle promotes solutions that

are fit for purpose; co-design ensures solutions are agreed upon; lived and living experience facilitates dissemination to core networks; and the voice and advocacy of lived and living experience drives change. Not every implementation driver in Figure 3 will be essential to each priority solution. People experiencing mental health problems should have their human rights protected and be treated with due dignity, compassion, and respect, including when in crisis. This includes concerns about iatrogenic harms of interventions in crisis contexts (such as police involvement or involuntary treatment).

Fortunately, there are useful models for improving health care, integrating physical health systems, and developing new health models to draw upon.[117,118] These models, guided by the three action principles, should help put our solutions into practice. Finally, for prevention to make a difference, oversight, leadership, and integration are required at public health, governmental, and community levels so that an overall coherent strategy is implemented across multiple stakeholders, all of whom need to be brought into achieving effective change.

Conclusion

Too many people die prematurely from suicide and the comorbidities associated with mental illness and mental distress. Beyond the moral imperative to prevent premature mortality, the economic case is clear from economic models showing cost-effectiveness of health-promoting interventions.[119] Many of the key causal factors are both known and shared by mental illness and suicide. Appropriate solutions to address them are actionable now or presently. Simultaneous, global co-ordinated action to mobilise knowledge and implement change is essential to prevent premature mortality and achieve parity in lifespans between people affected by mental illness and suicide risk, and the general population. As a first step, all countries should ensure that their laws and policies are consistent with human rights so that people living with, or at risk of, mental ill-health have the same rights to care as those with physical health needs. Although outside the scope of this paper, our findings may speak to the wider societal context of warfare, climate change, forced migration, human rights violations against women, and deinstitutionalisation. We in the mental health community of clinicians, researchers, people with lived and living experience, policy planners, and carers need to translate our understandings in policy and practice, to effect widescale transformation.

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Conflict of Interest statement

AL reports grants from American Foundation for Suicide Prevention, National Institute of Justice (US), National Institute of Health (US), Robert Wood Johnson Foundation, WK Kellogg Foundation; reviewer honoraria from National Institute of Health (US). AP is an equity owner of SafeSide Prevention which receives fees for consultation and educational programs provided to health, military, and government organizations. SafeSide pays royalties to the University of Rochester, which acknowledges this financial interest. **CMW** is a Trustee and Science Council Member of MQ: Mental Health Research and board member of Healthy Brains, Healthy Lives, but receives no remuneration for these roles; reports grants from the Foundation for Psychocultural Research; consulting fees from the Center for Developing Adolescent and Health Policy Research Scholars Program; and has received occasional fees and/or travel reimbursement for invited addresses from Institute of Evolutionary Medicine (University of Zurich), Senckenberg Institute (Frankfurt), Center for the Developing Adolescent, and Foundation for Psychocultural Research. **CM** receives royalties from Cambridge University Press; and has received occasional consultancy fees from Merck and Otsuka. **DK** reports grants from National Institute for Health and Care Research (UK) and Medical Research Council (UK); and has received an honorarium for an invited address from Royal College of General Practitioners. **DO** is supported by the University College London Hospitals NIHR Biomedical Research Centre and the NIHR North Thames Applied Research Collaboration. This funder had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The views expressed in this article are those of the authors and not necessarily those of the NHS, the NIHR, or the Department of Health and Social Care**. JD** has received payments for role as lived experience expert from MQ: Mental Health Research. **JP** reports grant from National Health and Medical Research Council. **KK** reports grants from the Robert Wood Johnson Foundation, the Kaiser Family Foundation, the Harvard Center on the Developing Child, Stanley Center for Psychiatric Research at the Broad Institute of MIT and Harvard, the National Institute of Health, One Mind, the Anonymous Foundation, and Cohen Veterans Bioscience; has received payments as a consultant for Baker Hostetler, Discovery Vitality, and the Department of Justice and as external reviewer for the Chan Zuckerberg Foundation, the University of Cape Town, and Capita Ireland; occasional fees for invited addresses from the American Psychological Association, European Central Bank, Sigmund Freud University – Milan, Cambridge Health Alliance, and Coverys; and receives royalties from Guilford Press and Oxford University Press. **LFC** is the third vice president of the International Association for Suicide Prevention,

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Authors' Contributions

RCOC and CMW co-led the MQ Mental Health Science Gone Too Soon Expert Group for Reducing Premature Mortality. RCOC and CW collated all contributions and drafted the manuscript. All members of the Expert Group Organising Panel (RCOC, CMW, HC, CM,

NB, JD, KK, LFC, PT, JDM, MA, NA) contributed to the design, conceptualisation, writing and delivery of the manuscript and were involved in the roadmapping pre-work, workshops and associated synthesis. NA led the roadmapping and synthesised the feedback from the pre-work and workshops. All other members of the Expert Group (PB, KB, RGF, SG, OG, DH, AJ, WK, MK, DK, OJK, SK, BK, AKL, CL, EM, RM, VM, TN, DO, JP, ARP, BP, HR, SS, DS, LV, PSFY) contributed to the manuscript by providing feedback as part of the pre-work or workshops. All authors reviewed and approved the final version of the manuscript.

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Legends for the Figures

Figure 1. Detailed flow of the *Gone Too Soon* roadmapping process. The figure delineates the steps and actors involved in the roadmapping process, from developing the scope and framework to the analysis, integration, and write-up.

Figure 2. *Gone Too Soon* framework (panels in grey) and priority risk factors and mechanisms (panels in blue). The framework comprises social-ecological and lifecourse perspectives and is based on interdisciplinarity and global diversity with attention to inequality. Priority risk factors and mechanisms (panels in blue) were identified in the roadmapping process. Most were shared by both domains, in suicide and mental illness, so are presented together here.

Figure 3. Implementation cycle. Lived and living experience is central to all success factors in cycles of implementation **(1**). The problem and the solution must be seen to be important **(2)** and they need to be promoted to create global, national and local interest. Economic and predictive modelling with cost and benefit analyses are needed to demonstrate the value including improved morbidity and mortality **(3)**. Success requires community collaboration **(4)** in ways that work for the public, to create and share culturally valued, evidence-based, and accessible knowledge and practices around specific conditions and solutions. The health care system and clinicians must be committed to reduce barriers to implementation and to be ready to change **(5)**. Solutions will require participation from systems outside health including housing, welfare, not-for-profit organisations, venture capital businesses, industry, and educational institutes **(6)**. To sustain success, continued education, literacy of and feedback from the public and consumer groups is needed **(7)** and new solutions must be enshrined within national politics and be funded **(8)**. The creation of infrastructure, responsibility, and oversight through (government-based) authority is critical to promote integration across multiple sectors, to understand and act on the need for equity, and engage cultural diversity; and to maintain a cycle of further research and innovation. The process is iterative: new solutions need to be continually monitored, evaluated, and improved **(9)**.

Panel 1. Lived and living experience in *Gone Too Soon*

In the *Gone Too Soon* framework, lived and living experience (LE) refers most specifically to direct first-hand experience of suicidality or mental illness, whether in the present or in the past. These experiences vary widely among people, depending on the severity of mental illness and social circumstances (e.g., laws, structures of care, family, and friends). LE also may include people directly affected by suicide or mental illness (losing a loved one; living with or caring for a family member or friend). Even more broadly, people with LE may include those whose jobs or service brings them into direct engagement with those who are suicidal or have a mental illness, such as carers, service providers, police and emergency workers, teachers, and religious or community leaders.

Suicide and mental illness touch the lives of virtually everyone, yet the experiences and perspectives of those most directly affected –whose lives literally are at stake– often are removed from the arena in which the knowledge, understanding, and policy aimed at supporting their needs are created. The exclusion of people with LE from defining their own experience and needs can exacerbate the stigmatising societal mores and dehumanising cultural attitudes too often experienced as social rupture, disempowerment, and marginalisation.

With these risks in mind, in *Gone Too Soon* we took a collaborative approach including a diverse range of people with LE across a range of areas studied. This was integrated with flexibility throughout the research process, rooted in the motivations, strengths, and support needs of our LE members. By embracing individual differences, welcoming all ideas, and valuing each contributor for their knowledge and skills (beyond solely their LE), we established a culture of working which valued all members equally, placing LE as part of the research team itself rather than something to be "involved in" that ultimately remains external.

The hope is that this approach yields more innovative, effective, and sustainable outcomes across research, intervention, and policy, which not only better meet the needs of those with LE, but also addresses the negative social and cultural conditions they confront.

Table 1. Organising principles and related actionable solutions for comorbidities of mental illness and suicide. Solutions were identified and prioritised through the roadmapping process. Examples are provided for each solution.

Integration of mental and physical care	
Solutions	**Examples**
1. Eliminate silos in health care	Integrated primary youth mental health care services.[78] Group therapy improves depression and HIV treatment[103]
2. Improve collaborative care models	Task shared integrated collaborative care for patients with depression and diabetes[77] or alcohol in South Africa[83]
3. Improve care-provider training, capacity-building	EMERALD multi-national programme[70] WHO EQUIP training programme[75]
4. Access to primary care services with capacity to treat mental and physical health problems	Integrating mental health therapy into primary care. RESHAPE stigma reduction for carers in Nepal[120]
5. Improve screening, early identification and treatment of comorbidities	Garrett Lee Smith Youth Suicide Prevention Programme.[80] Portable MRI in LMICs[121]
Prioritisation of prevention while strengthening treatment	
Solutions	**Examples**
1. Policies to restrict access to lethal means and decriminalisation of suicide	Banning pesticides in Sri Lanka[122]
2. Media/social media engagement to tackle stigma and prevent suicide	Engagement of the Malaysian media community on safe reporting of suicide[97]
3. Policies targeting upstream factors to regulate tobacco & support adequate diet/nutrition	WHO recommendations for tobacco cessation and management of substance use disorders[52]
4. Work-based interventions to promote healthy workplaces	Mental Health in the Workplace guidance[94]
5. Early intervention, education and public mental health awareness & training	Postnatal home visitation to support parenting and infant healthy development[123]
6. Community-based interventions, peer engagement	Communities That Care Plus (CTC Plus): a community-based planning and implementation system for youth in US[95]

7. Improve access to effective treatments and personalised medicine	Access to psychosocial treatments for suicidal thoughts and behaviour[111]
Optimisation of intervention synergies across social-ecological levels and the intervention cycle	
Solutions	**Examples**
1. Strategies to reduce stigma, discrimination, marginalisation, gender violence & victimisation	Women-centred, advocacy, and home-visitation programmes.[86,124,125] Stigma reduction strategies[7]
2. Action to reduce income inequality, such as income support & acute cash transfers	National cash transfer programme in Brazil[105]
3. Increase investment in mental health	Investment in mental health and suicide prevention saves lives and is cost effective[119]
4. Redesign health systems to focus on factors that cause illness & improve treatment	Integrated care for severe mental illness, Ethiopia.[79] Guidelines for high-performing hospitals[126]
5. Harness digital opportunities & big data	Passive sensing on mobile devices to improve mental health services in Nepal.[109] App co-design
6. Better understanding of interplay between biomarkers & psychosocial risk factors	Cortisol-trauma relationship in suicide risk.[127] Bio-markers of environmental risk factors in depression[128]

Figure 1. Detailed flow of *Gone Too Soon* roadmapping process (eps file emailed separately)

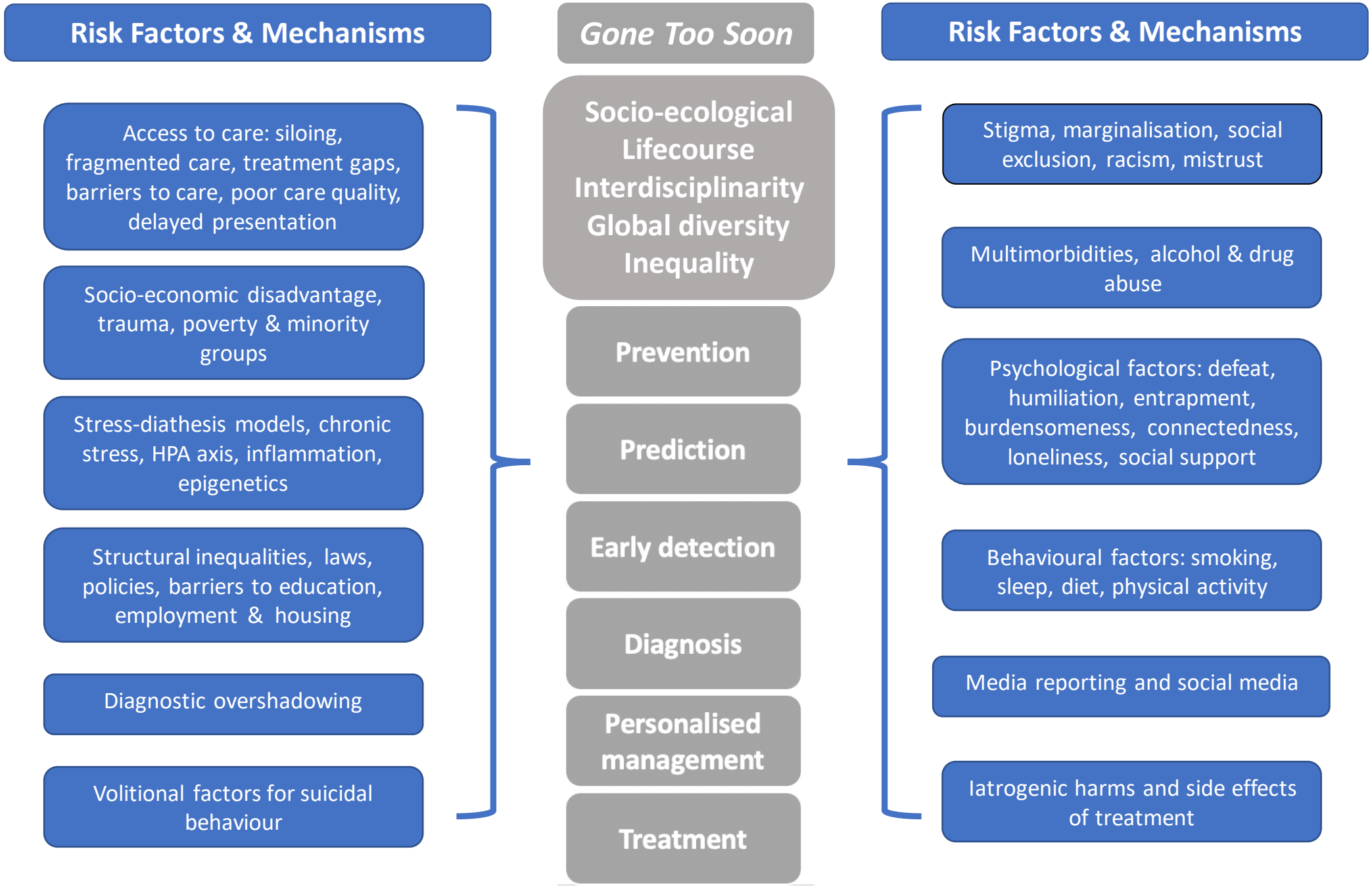
Risk Factors & Mechanisms
Gone Too Soon
Risk Factors & Mechanisms
Access to care: siloing, fragmented care, treatment gaps, barriers to care, poor care quality, delayed presentation
Socio-economic disadvantage, trauma, poverty & minority groups
Stress-diathesis models, chronic stress, HPA axis, inflammation, epigenetics
Structural inequalities, laws, policies, barriers to education, employment & housing
Diagnostic overshadowing
Volitional factors for suicidal behaviour
Socio-ecological
Lifecourse
Interdisciplinarity
Global diversity
Inequality
Prevention
Prediction
Early detection
Diagnosis
Personalised management
Treatment
Stigma, marginalisation, social exclusion, racism, mistrust
Multimorbidities, alcohol & drug abuse
Psychological factors: defeat, humiliation, entrapment, burdensomeness, connectedness, loneliness, social support
Behavioural factors: smoking, sleep, diet, physical activity
Media reporting and social media
Iatrogenic harms and side effects of treatment

Figure 3. Implementation cycle (eps file emailed separately)