For policymakers, researchers and health promotion practitioners

Evidence review: The primary prevention of mental health conditions

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1. Executive summary

This evidence review focuses on answering two questions:

1. Can mental health conditions be prevented?
2. Can this be achieved through primary prevention activity?

In summary, mental health conditions are not inevitable and there is considerable scientific evidence to show that many conditions can be prevented from occurring.

While it is not possible to prevent every case of a mental health condition – much as we can't prevent every cancer or heart attack – a sizeable percentage of cases of depression, anxiety conditions, certain behavioural disorders, and alcohol and substance use disorders can be prevented through interventions that address the risk and protective factors that drive mental health conditions.

The challenge now is to take these evidence-based initiatives to scale across the Victorian population and ensure they are properly implemented, while also continuing to build the emerging evidence base around interventions that target major risk factors with a profound influence on mental health and wellbeing. This includes a focus on preventing child maltreatment, intimate partner violence, bullying, racism, and socioeconomic disadvantage.

The burden of mental ill-health in Victoria is significant and not decreasing
Mental health conditions are common, distressing, potentially disabling and may lead to premature death. Effective treatments are available and to date, governments have focused on encouraging people to seek assistance when they experience a mental health condition, and on improving the availability, affordability, and quality of services for people who experience these conditions and their carers. However, despite a major increase in treatment availability and uptake, this has not reduced the prevalence and population-level impact of mental health conditions in almost 25 years, and indeed, the prevalence of these conditions appears to be increasing among young people.

There are likely to be considerable benefits in combining a focus on prevention and treatment
In most areas of health, governments understand the importance of adopting a parallel focus on prevention and treatment. By combining population-level prevention and individual-level clinical interventions, Australia has achieved substantial reductions in the prevalence and impact of ischaemic heart disease and many cancers. It is highly likely that a similar parallel investment in prevention and recovery support will enable Victoria to achieve greater gains in mental health than we have been able to achieve to date.

This evidence review aims to synthesise the peer reviewed and grey literature on prevention
This evidence review synthesises the evidence relating to risk and protective factors for mental health conditions and interventions that aim to prevent the onset of mental health conditions by targeting these risk and protective factors. It draws on a literature review undertaken by the Sax Institute on behalf of VicHealth in mid-2019 (included as an attachment to their submission to the Royal Commission into Victoria's Mental Health System) that focused on peer-reviewed systematic reviews, and supplements this with other peer-reviewed and grey literature. It focuses on interventions targeting whole populations or groups at higher risk of experiencing mental health conditions and does not include prevention interventions targeted to individuals with early, subthreshold symptoms.

Key questions and main findings

This evidence review seeks to answer two questions: 'Can mental health conditions be prevented?' and 'Can this be achieved through primary prevention activity?' **Based on the available evidence the answer to both questions is yes.**

The mental health conditions that are most preventable
Overall, the research evidence around primary prevention is stronger for some conditions than others. There is very strong evidence to show that depression can be prevented, and strong evidence that anxiety conditions, certain behavioural disorders in childhood, and alcohol and substance use conditions can also be prevented. Given their collective prevalence, primary prevention initiatives for these conditions are likely to lead to substantial improvements in population mental health.

Effective primary prevention interventions and the modifiable risk and protective factors they address
Primary prevention focuses on preventing the onset of mental health conditions by reducing people's exposure to risk factors and/or increasing their exposure to protective factors for these conditions. Risk factors are biological, psychological, and social variables that increase a person's likelihood of experiencing a condition. By contrast, protective factors lower the likelihood. There are a considerable number of risk and protective factors for mental health conditions, and the research evidence shows there is a corresponding range of effective primary prevention initiatives that influence these factors and reduce the occurrence of several conditions. For example:

- **Parenting programs**
  There is very strong and consistent evidence that in-home supports, antenatal programs, and parenting programs can improve parental mental health, enhance parent-child interactions, and promote positive parenting and family environments, and this in turn can prevent the occurrence of child and adolescent mental health conditions. Moreover, these strategies can also reduce child neglect and abuse.

- **Social and emotional development programs**
  There is also very strong and consistent evidence that personal skills-building programs delivered through schools, universities, workplaces and online can increase protective factors such as healthy behaviours, social and emotional skills, self-care skills and resilience, and prevent mental health and substance use conditions. Effective programs typically utilise strategies drawn from health, clinical and positive psychology, especially cognitive behaviour therapy (CBT), interpersonal therapy (IPT), acceptance and commitment therapy (ACT), and mindfulness.

- **Creating supportive environments for mental health**
  - There is good evidence that programs that support older people to enhance their social networks can reduce loneliness and social isolation, which are risk factors for mental ill-health.
  - Bullying and mental ill-health are causally linked, and there is strong evidence to show that school-based programs can prevent bullying, which in turn reduce the risk of depression, anxiety, and other conditions.
  - There is good evidence that organisational-level programs in educational and work settings can improve school and work climate and reduce key risk factors within those environments, and in turn reduce the risk of depression and anxiety.

- **Strengthening community action for mental health**
  There is good evidence that community-level programs can enhance social cohesion and other protective factors and reduce the risk of substance use conditions and anti-social behaviour.

- **Building mentally healthy public policy**
    - There is some evidence that legal, public education and some programmatic measures may reduce people's experience of child neglect and abuse, intimate partner violence, and racism; however, these are currently not achieving sufficient impact. Averting these particular risk factors is critical, as they are each highly prevalent and strongly associated with the occurrence of a wide range of mental health conditions.
    - While it is likely that public policy measures to improve people's socioeconomic circumstances and social position will have considerable mental health benefits, there is little research that has directly evaluated the mental health impacts of these interventions.

Investing in prevention saves lives
Preventing mental health conditions can save lives. Between 60 per cent and 98 per cent of people who die by suicide have an underlying mental health condition. Preventing these conditions from occurring is highly likely to prevent suicide deaths.

Investing in prevention saves money
There is also considerable research that shows the economic benefits of prevention interventions. For example, a recent report prepared for the National Mental Health Commission found that nine of the ten prevention interventions they analysed had a positive return on investment, ranging from $1.05 to $3.06 for each dollar invested. Other Australian and international research confirms that many initiatives to prevent the onset of mental health conditions are cost-effective and save money.

Putting prevention into action
It is crucial to remember that small improvements across large segments of the population have a much greater impact on reducing incidence than large improvements across a smaller proportion of individuals.

It is also notable that many current evidence-based interventions use programmatic approaches, however, it is also likely that public policy measures could help to achieve change as shown by measures to tackle risk factors for physical health conditions such as smoking prevention policies. While there is currently little research evidence relating to policy-based approaches to the prevention of mental health conditions, there is little doubt that efforts to tackle the social determinants of mental health will produce considerable benefits, especially among vulnerable Victorians, given that the prevalence of mental health conditions is heavily influenced by people's living conditions and social position.

Despite these challenges, numerous prevention intervention studies have shown positive impacts. Given the strength of the evidence covered in this evidence review, and the established cost effectiveness of many prevention interventions, there is clearly a very strong case for government investment in the primary prevention of mental health conditions.

The challenge now is to ensure that existing evidence-based prevention initiatives are well implemented and taken to scale across the Victorian population. It is also imperative that we conduct further research into prevention interventions that target factors that have a considerable influence on mental health and wellbeing, but where the evidence base is currently limited or only just emerging. In particular, research is needed to find more and better ways to prevent adverse childhood experiences, intimate partner violence, bullying, racism and to address socioeconomic disadvantage and homelessness.

2. What is prevention and how is it achieved?

Section summary

- Most mental health conditions evolve through a series of stages from 'wellness' to subthreshold symptoms, and onto a diagnosable disorder.
- Prevention efforts can target any of these stages to avert progression to the next.
- Primary prevention occurs before the onset of a condition to prevent it from developing.
- Secondary prevention targets the early stages of a condition to reduce its duration or severity.
- Tertiary prevention focuses on lessening a condition's impact on quality of life and longevity.
- A large number of factors exert an influence on the development of mental health conditions.
- Risk factors increase a person's likelihood of experiencing a condition, while protective factors reduce the likelihood.
- Preventing the onset of a mental health condition requires efforts to reduce people's exposure to risk factors and/or increase their exposure to protective factors.
- At least 21% of the disability and premature mortality associated with mental health conditions is preventable in this way.

Primary, secondary, and tertiary prevention target different stages of a condition

Mental health conditions typically evolve through a series of clinical stages with a person moving from wellness, through a period of fluctuating subthreshold symptoms, and onto a first episode of a condition. This first episode may then be followed by permanent remission, a remitting and relapsing course, or a more persistent course over years or decades.[1] Progression from one stage to the next is not inevitable and can be interrupted through appropriate interventions. Three 'types' of prevention interventions are used to describe the point at which efforts are made to prevent further progression:[2]

1. Primary prevention aims to prevent the onset of a condition by stopping it from occurring in the first place.
2. Secondary prevention focuses on the detection and treatment of a mental health condition at its earliest possible stage to reduce its duration and severity. Secondary prevention is broadly synonymous with early intervention.
3. Tertiary prevention aims to reduce the impact of an established condition on an individual's functioning, quality of life and longevity through treatment and psychosocial supports.[3 4 5]

Primary prevention works by changing modifiable underlying risk and protective factors

Risk factors are personal, psychological, or broader social ecological variables that are associated with an increased risk of developing a mental health condition. Most conditions are multi-factorial and result from a combination of risk factors working together, either simultaneously or cumulatively over time, rather than a single risk factor operating in isolation.[6 7]

Protective factors reduce a person's likelihood of experiencing a mental health condition. Protective factors can enhance and protect a person's mental health and wellbeing, or they can act as a buffer against a person's exposure to risk factors and thereby reduce their chances of becoming unwell.[8 9]

By reducing people's exposure to risk factors and/or increasing their exposure to protective factors it is possible to reduce the occurrence of mental health conditions across the community.[10]

Risk and protective factors vary in their prevalence and strength of association

Myriad risk and protective factors are known to influence the development of mental health conditions. Some are specific to particular conditions, but most are linked to multiple conditions.[11] Many have their origins early in life and the first 1000 days are particularly critical to a person's future mental health and wellbeing.[12]

Risk and protective factors vary in their prevalence. Some factors are uncommon, such as childhood exposure to lead, which is associated with depression and psychosis, while other factors, such as adverse childhood experiences are far more widespread.

Risk and protective factors also vary in the strength of their association with various mental health conditions.[13] Risk factors are typically determined from correlational and longitudinal research and in most cases it is therefore only possible to establish correlation rather than causation; however certain factors, such as child maltreatment, intimate partner violence and bullying, are considered causal based on the strength of their association and other established epidemiological criteria for causality.[14] [15] [16] [17]

Risk and protective factors also vary in how modifiable they are. For example, a person's genetic profile cannot be altered, whereas the nature of an individual's family, school or work environment can be changed through primary prevention interventions.

Primary prevention is ultimately a population mental health endeavour and success depends on population-wide changes in people's exposure to risk and protective factors, particularly those that have a strong association with mental health conditions and/or are highly prevalent in the population.

How preventable are mental health conditions?

According to recent burden of disease studies, at least 20.8% of the burden of disability and premature death associated with mental health conditions is preventable.[18] It is important to note that these estimates are only based on preventing the impacts of alcohol use, drug use, child sex abuse and intimate partner violence rather than all the known risk factors linked to mental health conditions, and so the proportion of the burden that can be averted through primary prevention is clearly much higher.

The burden of disability and premature death that can be averted through prevention compares favourably with the level that could be averted through treatment, which for depression has been estimated to be around a third. However, this would require 100% coverage and compliance with evidence-based treatments, something that has not been possible to achieve to date and remains unlikely.[19]

3. Implementation principles for primary prevention

SECTION SUMMARY

- A large number of factors exert an influence on the development of mental health conditions.
- While the biggest gains in primary prevention come from tackling modifiable factors that have strong associations with particular conditions, it can still be worthwhile targeting factors that have a lower association with a condition as long as they are reasonably prevalent in the community, since even a small risk spread across a large population can lead to a substantial number of incident cases.
- Since a large proportion of mental health conditions commence in childhood, adolescence, and early adult life, it is important to implement primary prevention initiatives early in life.
- The prevention of depression, anxiety and other mental health conditions requires a multi-modal approach that targets key risk and protective factors. This mirrors preventative efforts in other areas of health, such as the prevention of diabetes, heart attacks, strokes, and cancers, where no single intervention can prevent any of these conditions on its own.
- While some prevention initiatives can be conducted through health care settings, most are conducted in the key settings in which people grow, study, work and live.
- It is imperative that primary prevention interventions are evidence-based, well implemented and delivered at scale.
- Tracking progress is also essential, and mechanisms are needed to monitor changes in population-level exposure to risk and protective factors, and in the incidence and prevalence of specific mental health conditions.

Target known risk and protective factors

Primary prevention works by influencing the underlying risk and protective factors that are associated with mental health conditions. There is no single cause for most mental health conditions. Instead these conditions typically arise from a combination of risk and protective factors operating together over the life course.[20] The timing and the total number of risk factors that an individual experiences in their lifetime, and the degree to which they are offset by protective factors, is important.

Prioritise key factors

Broadly speaking, the biggest gains in prevention are to be had by tackling factors that are highly prevalent in the community; have strong associations with a condition; and/or are readily changed through intervention. However, it can still be very worthwhile targeting factors that have a low or moderate association with a condition if they are prevalent in the community. If a large population is exposed to even a low risk, it can lead to a large proportion of people becoming unwell. Interventions that have minimal impact for any one individual have considerable impact when aggregated across the population.[21]

Get the timing right

Primary prevention needs to occur before a condition's onset. While different conditions have their first onset at different ages, many start early in life.[22] Overall around 50% of lifetime mental health conditions occur before the age of 14 years, a further 25% before age 24, and the remainder start after that age.[23] Primary prevention initiatives therefore need to be maximised in the perinatal period, childhood, adolescence and young adulthood, but continue throughout the life-span.

Take an integrated, multi-modal approach

Learnings from chronic disease prevention highlight the importance of taking a multi-modal approach. Key public health strategies include developing personal skills, creating supportive environments, strengthening community action, building healthy public policy, and reorienting health services towards prevention. It is particularly important to combine strategies to promote individual behaviour change with strategies to change social norms and the social determinants of health. Efforts to prevent diabetes, heart disease, cancers and even road trauma have all required action across all these domains. Given the need to target multiple risk and protective factors, across multiple populations and settings, using multiple strategies, a government or non-government coordinating and/or commissioning body is needed to bring interventions together in a way that creates the aggregated impact necessary to reduce the incidence of each mental health condition.

Ensure reach and scalability

Primary prevention is a population-level activity, rather than an individual-level activity and has to occur at scale once a program or policy intervention is shown to be effective. High reach is essential, and scalability is vital. This is the reason why many primary prevention initiatives are delivered through mass-population settings like schools, workplaces, and online.

Intervene in everyday settings

The prevention of mental health conditions needs to happen predominantly in the community. It is important to embed prevention activities in everyday settings such as online; the home; primary care; early learning services, schools, and higher education settings; workplaces; local communities; sport; the arts; as well as through legislation and mentally healthy public policy.

Use evidence-based strategies and implementation science to improve results

Using evidence-based interventions is crucial and there are reviews and databases that list effective and 'best buy' interventions that can be used by decision makers to guide investment.[24] [25] [26] [27] It is also important to ensure that evidence-based programs are delivered as intended. Sadly, this does not always occur, particularly in schools, where many programs are either not evidence-based, or are not delivered as intended, due to competing demands, inadequate professional development, supervision and support, and resource constraints.

Monitor impacts

Strong surveillance or other monitoring systems are required to measure changes in exposure to risk and protective factors, and any resulting changes in the incidence and prevalence of conditions. It is imperative that any measurement of outcomes in public policy initiatives that impact social and economic outcomes for Victorians must also include a measure of mental health outcomes.

4. A summary of interventions to address key modifiable risk and protective factors

The evidence base around primary prevention interventions is currently emerging. The table below includes an indication of the strength of the association between risk factors and mental health conditions, as well as the strength of evidence for interventions based on existing systematic reviews. These ratings should be considered in the context that a low rating does not necessarily mean that interventions are not effective, but that further investment is required to establish a strong evidence base.

Table 1. Evidence-based prevention interventions for key modifiable risk factors

RISK FACTOR	STRENGTH OF FACTOR ASSOCIATION WITH MENTAL HEALTH CONDITION(S)	EFFECTIVE INTERVENTIONS	STRENGTH OF EVIDENCE FOR INTERVENTIONS BASED ON SYSTEMATIC REVIEWS
• Exposure to child maltreatment or other ACEs	★★★	• Home visiting programs that provide in-home practical support, emotional support, and advice, instruction, and role modelling of positive parenting skills (e.g. Nurse Family Partnership) • Triple P parenting program, Incredible Years, other parenting programs • Early intervention for children who have experienced ACEs • Laws and regulations to prevent child abuse and family violence	★★ ★★ ★★ ?
• Intimate partner violence	★★★	• Education programs to reduce sexual violence among young people • Laws, regulations, education campaigns	★ ?
• Bullying	★★★	• Anti-bullying programs within school settings • Workplace anti-bullying programs	★★ ★
• Racism and discrimination • Homophobia, transphobia	★★	• Contact-based programs • Laws and regulations	? ?
• Poor parental mental health and/or substance misuse	★★★	• Antenatal exercise programs • Antenatal CBT and IPT psychoeducation groups • Screening and treatment of perinatal mental health conditions	★★ ★★ ★★★
• Insecure or disorganised attachment • Harsh or authoritarian parenting, inconsistent discipline, inter-parental conflict, overprotection/control, and criticism/lack of warmth	★★★	• Various skills-building parenting programs that promote secure attachment, positive child-parent interactions, and positive family climate (e.g. Triple P, Tuning into Kids, Tuning into Teens, Partners in Parenting, Strengthening Families)	★★★
• Loneliness	★★	• Various older person's social support programs	★

RISK FACTOR	STRENGTH OF FACTOR ASSOCIATION WITH MENTAL HEALTH CONDITION(S)	EFFECTIVE INTERVENTIONS	STRENGTH OF EVIDENCE FOR INTERVENTIONS BASED ON SYSTEMATIC REVIEWS
• Low psychosocial safety climate (PSC) • High (or low) demand/low control/low support jobs • High effort/low reward and recognition • Poor procedural or organisational justice • Interpersonal conflicts, bullying, harassment, and discrimination • Poor line management • Poorly communicated organisational change • Low job insecurity • Exposure to workplace violence or trauma	★★	• Organisation level initiatives such as: – leadership and manager training and development – communication and cooperation-based programs – shared social activities and other workplace social capital interventions – employee participatory strategies – interventions to reduce workload or increase workers' control over their work – flexible work arrangements that promote work-life balance	★★
• Socioeconomic factors (e.g. debt, unemployment and homelessness)	★★	• Various public policies	?
• Sociocultural factors (gender inequality, income inequality)	★★	• Various public policies	?

Table 2. Evidence-based prevention interventions for key modifiable protective factors

PROTECTIVE FACTORS	STRENGTH OF FACTOR ASSOCIATION WITH MENTAL HEALTH CONDITION(S)	EFFECTIVE INTERVENTIONS	STRENGTH OF EVIDENCE FOR INTERVENTIONS BASED ON SYSTEMATIC REVIEWS
• Resilience – Social and emotional skills – Social supports	★★★	• Classroom-based psychosocial skills-building programs, especially those based on clinical psychology strategies (e.g. CBT, IPT, ACT) and positive psychology strategies (e.g. mindfulness), that aim to enhance children and young people's social and emotional skills and resilience • Self-care strategies derived from health, clinical and positive psychology (including healthy behaviours, CBT-, IPT- and ACT-based strategies, mindfulness, gratitude, and compassion) for young people and adults (face-to-face and online) • Workplace programs focused on employee healthy lifestyle, stress reduction, resilience training and mindfulness Note: CBT – cognitive behavioural therapy; IPT – interpersonal therapy; ACT – acceptance and commitment therapy	★★★
• High quality diet • Regular physical activity • Non-smoking • Low alcohol intake	★★	• Various health promotion interventions • Healthy public policy	★★★
• Sleep	★★	• CBT-based programs for children and adolescents	★
• Authoritative parenting style, positive parent-child relationship, higher levels of parental warmth and support, and higher levels of autonomy granting • Positive family climate	★★★	• Various parenting programs (e.g. Triple P, Tuning into Kids, Tuning into Teens, Partners in Parenting, Strengthening Families)	★★★
• Positive school climate (e.g. belonging and connection to school)	★★	• Whole-of-school mental health promotion initiatives that focus on enhancing mental health literacy, social and emotional skills and resilience through classroom-based activities and role modelling; creating a positive school climate; and building partnerships with parents and external services	★

PROTECTIVE FACTORS	STRENGTH OF FACTOR ASSOCIATION WITH MENTAL HEALTH CONDITION(S)	EFFECTIVE INTERVENTIONS	STRENGTH OF EVIDENCE FOR INTERVENTIONS BASED ON SYSTEMATIC REVIEWS
• High psychosocial safety climate • Job control • Team and management support • Organisational justice • Recognition and reward • Work-life balance	★★	• Organisation level initiatives such as: – leadership and manager training and development – communication and cooperation-based programs – shared social activities and other workplace social capital interventions – employee participatory strategies – interventions to reduce workload or increase workers' control over their work – flexible work arrangements that promote work-life balance	★★
• Social capital, social cohesion, social connectedness	★★	• Place-based interventions targeting community-level risk and protective factors such as social cohesion and social capital	★★ (for substance use and anti-social behaviour) ? for mental health conditions

5. Interventions to address key risk and protective factors

SECTION SUMMARY

- Risk factors vary in their prevalence, strength of association with mental health conditions and malleability to change through intervention.
- Genetic and other biological factors, along with temperament and personality have an important influence on mental health but are not readily amenable to change via intervention.
- Important modifiable risk factors include parental mental ill-health; child maltreatment; family violence; bullying; racism and other forms of discrimination; loneliness; work-related psychosocial risk factors; debt; unemployment; homelessness; and lower socioeconomic status.
- Important modifiable protective factors include resilience; child-parent attachment; parenting style; family environment; social support; positive school and workplace environments; and employment, stable housing, and higher socioeconomic status.
- Interventions may target one or more of these factors to achieve preventative results.
- Based on the findings of numerous systematic reviews, there is very strong evidence of the efficacy of interventions including healthy lifestyle strategies such as regular physical activity, healthy eating, adequate sleep and non-smoking; individual skills-building programs to enhance social and emotional, resilience and 'self-care' skills; and parenting interventions that target protective factors such as secure attachment, positive parenting skills and a positive family environment. Programs and strategies that draw on cognitive behaviour therapy (CBT) and mindfulness practices are particularly effective in preventing depression and anxiety conditions.
- There is also good evidence for anti-bullying programs and whole-of-school approaches to mental health and wellbeing, and emerging evidence for strategies that address workplace psychosocial risk factors, and for community-level interventions.
- While there is less evidence for interventions to prevent critical risk factors such as child maltreatment, intimate partner violence, and adverse childhood experiences, there are likely to be considerable benefits in addressing these factors because they contribute enormously to the risk of depression and anxiety conditions, as well as self-harm and suicide.
- It is also highly likely that measures to enhance education outcomes, and decrease socioeconomic disadvantage, and homelessness will have significant flow-on benefits for mental health although direct research evidence is limited. These issues require public policy solutions rather than program solutions, and researching such interventions is difficult.
- It is clear that mental health conditions are not inevitable and there is good scientific evidence to show that many conditions can be prevented from occurring. While it is not possible to prevent every case of a mental health condition – much as we can't prevent every cancer or heart attack – it is nevertheless possible to prevent a sizeable percentage of cases of depression, anxiety conditions, certain behavioural disorders, and alcohol and substance use disorders.

Numerous risk and protective factors are associated with mental health conditions. While they are all important, some are more influential than others in terms of their strength of association with mental health conditions. The following section summarises the evidence for interventions targeted to particular risk and protective factors, starting with those that target protective and risk factors that are causal or have a very strong association with various mental health conditions, and moving

towards those which have a significant, but less strong association with the development of mental health conditions.

Adverse childhood experiences

Overview

Adverse childhood experiences (ACEs) are chronically-stressful or traumatic experiences that occur among children and young people aged 0–18. Commonly described ACEs include all forms of child abuse and neglect, exposure to family violence and having a parent with a severe mental illness, alcohol/substance use disorder or history of incarceration. Children and young people exposed to ACEs are at increased risk of a range of mental health conditions in childhood, adolescence and adulthood.[28] [29] The greater the number of ACEs a person experiences the higher their risk of experiencing various mental health and substance use conditions over the entire life course.[30]

Among adults who have experienced four or more ACEs as children there are strong associations with mental ill-health, and problematic alcohol use (odds ratios of more than three to six); and very strong associations with problematic drug use and interpersonal and self-directed violence (odds ratios over seven).[31] Consistent with this, some studies suggest that about a quarter of harmful alcohol use and about 30% of cases of anxiety and 40% of cases of depression are attributable to exposure to ACEs.[32] There are also low-moderate associations between ACE exposure and a range of health risk behaviours and chronic diseases such as chronic obstructive pulmonary disease, diabetes, cardiovascular disease, and cancer.[33]

Child maltreatment is one specific type of ACE that is strongly and causally linked to conditions as diverse as depression, anxiety disorders, eating disorders, personality disorders, and schizophrenia as well as to self-harm and suicide.[34] [35] [36] [37] [38] [39] [40] There are various forms of child maltreatment such as emotional and physical neglect, and emotional, physical, and sexual abuse and the risk varies with the type and extent of neglect or abuse.[41] For example, systematic reviews show that:

- Adults exposed to emotional abuse in childhood are 2.4–3.9 times more likely to develop depression and 2–5 times more likely to develop anxiety conditions than adults who had not been exposed to emotional abuse as children or teenagers.[42]
- Adults who were physically abused as children are 1.3–1.7 times more likely to develop depression and 1.3–2.2 times more likely to develop an anxiety condition than other adults.[43]
- Women who experienced child sexual abuse are 1.7 times more likely to experience generalised anxiety disorder (GAD) and 2.14 times more likely to experience depression than other women.
- Men who are victims of child sexual abuse are 1.2 times more likely to experience GAD and 1.5 times more likely to experience depression than men who were not abused during childhood or adolescence.[44]

Overall, child abuse and neglect is ranked as the 10th highest risk factor for the burden of *all* injury and disease in Australia, accounting for 2.2% of Australia's total burden of injury and disease. More specifically, it accounts for 11.8% of the burden related to mental health conditions.[45] Other research suggests that for females, 33.0% of self-harm, 30.6% of anxiety disorders and 22.8% of depressive disorders burden is attributable to child abuse, while for males 23.5% of self-harm, 20.9% of anxiety disorders and 15.7% of depressive disorder burden is attributable to child abuse.[46]

Given the very high association between ACEs and mental health conditions, some experts argue that the prevention of ACEs should be a core focus of primary prevention efforts in mental health.[47] Moreover, preventing ACEs will help to prevent serious chronic health conditions as well.[48]

Interventions

ACEs, and in particular, child abuse and neglect are powerful risk factors for mental ill-health, and there are some, though not enough, interventions that can reduce the occurrence or impact of these factors. Home visiting programs are one of the more effective types of programs.[49] There are several types of home visiting programs including layperson, para-professional, professional and nurse home visiting programs.[50] All programs feature in-home visits and the provision of practical support; demonstrations or assistance in daily activities; problem-solving; and emotional support.[51]

These programs commence during the pre-natal, neonatal, or infant stage of development, and span the first year or two of the child's life. While measures of child maltreatment vary across studies, overall most studies have shown direct impacts in reducing child maltreatment using metrics such as reduction in substantiated cases of child abuse and neglect, hospital attendance, foster care or out-of-home-care placement.[52] [53]

Parent support is also central to supporting children who have experienced ACEs. A recent review found that multicomponent interventions that utilise professionals to provide parenting education, mental health counselling, social service referrals, or social support can reduce the impact of ACEs on child mental health and improve the parent−child relationship for children aged 0−5 years.[54] Some parenting programs, in particular The Positive Parenting Program (Triple P), have also been shown to reduce the likelihood of child maltreatment. [55]

From a policy perspective, child maltreatment is a criminal offence under state and territory legislation. These laws also govern the way in which child maltreatment is reported, investigated, and managed by child protection services. Most states have mandatory reporting provisions, although each jurisdiction differs in who is mandated to report and the circumstances under which they are required to do so.[56]

Intimate partner violence

Overview

Intimate partner violence (IPV), including psychological, physical, and sexual abuse, is associated with higher levels of depression and anxiety.[57] Intimate partner violence is causally linked to homicide and violence, suicide and self-inflicted injuries, alcohol use disorders, depression, and anxiety. In 2015 in Australia, intimate partner violence contributed 41% of homicide and violence burden, 19% each of suicide and self-inflicted injuries and depressive disorders burden, and 12% of anxiety disorders burden in females.[58] Preventing IPV will therefore prevent a considerable proportion of mental health conditions among females.

Interventions

Primary prevention strategies for IPV seek to prevent violence before it occurs.[59] The primary prevention of IPV is a relatively new field of research with most of the focus to date placed on strategies to keep women safe and respond to the violence after it has occurred.

Primary prevention programs addressing IPV consist of school-based or community-based respectful relationship programs targeting adolescents before victimisation or perpetration occur; public education campaigns; bystander empowerment and education; creating safe school and workplace environments; and structural initiatives that aim to reduce gender inequality.[60] [61] Many of these, such as respectful relationships programs and gender equality initiatives, are included in the Victorian Government's approach to the primary prevention of IPV.[62]

A systematic review of healthy relationships programs conducted in 2013 found only a limited number of studies targeted to adolescents but several of these produced modest reductions in IPV

behaviours among program participants compared to controls.[63] Other IPV interventions have focused more specifically on sexual violence, particularly among young people. One review found that such educational programs can lead to increased knowledge of teen dating violence and attitudes that are less accepting of violence in relationships among program participants compared to controls, although they showed no reductions in dating violence perpetration and victimisation.[64] Another review of sexual violence prevention programs conducted in 2014 found three interventions which showed clear impacts on reducing sexual violence (Safe Dates, Shifting Boundaries and funding associated with the 1994 U.S. Violence Against Women Act).[65]

A more recent systematic review that examined primary prevention programs for sexual, dating, and intimate partner violence found that programs varied considerably in their target group (adolescent or adult male), number of sessions, implementer, and focus. Most consisted of educational sessions that covered topics such as abusive behaviour, masculinity/male gender roles, the effects of violence, healthy relationships, and ways in which bystanders can prevent IPV. Results varied, however overall, five of the nine studies reviewed showed some reductions in sexual violence and IPV in the short term and were considered promising.[66]

Another recent systematic review focused on workplace-based approaches to preventing IPV found relatively few studies had been conducted. Most interventions focused on recognising signs of abuse, responding to victims, and providing referrals to community-based resources. Most led to some improvements in participants knowledge of IPV, willingness to intervene, and likelihood of providing information or resources.[67]

Another growing area of practice and research interest are programs designed to promote healthy masculinities. The area of prevention is relatively new and while a variety of health promotion/socio-ecological methodologies are being used to free men and boys from unhealthy masculine stereotypes, there is currently a lack of good evaluation data, and more research is required to determine the potential benefits of such approaches.[68]

The Family Foundations program, developed in the USA, targets mothers, fathers and same-sex couples during pregnancy and the postnatal period and seeks to prevent interparental conflict and promote healthy child development. Trials in the USA demonstrate sustained reductions in interparental conflict, parent mental health conditions, harsh parenting, and children's emotional-behavioural difficulties, although IPV is not directly measured.[69] The program is currently being trialled in Victoria through the Safer Families Centre of Research Excellence.

In terms of policy interventions, family violence is an area that has a strong legal and public policy framework. However, evidence for its impact in preventing mental health conditions is currently limited, due to the lack of research in this area.

Bullying

Overview

Bullying, including cyberbullying, is also causally linked to the occurrence of mental disorders.[70] [71] [72] Globally, bullying accounts for 5.01% of all disability-adjusted life years (DALYs) associated with anxiety disorders and 3.68% of all major depressive disorder DALYs. Overall, it is estimated that 7.8% of the burden of anxiety disorders and 10.8% of the burden of depressive disorders in Australia are attributable to bullying victimisation.[73]

Bullying is highly prevalent among school age children and adolescents, but some groups, such as LGBTQ[*] young people are more likely to be victims, and depression levels are higher in young sexual minority young people exposed to cyberbullying, compared to those who had not been exposed.[74] Workplace bullying is also widespread across a range of industries. People exposed to workplace bullying are 2.5 times more likely to experience work-related depression than people not exposed, and workplace bullying accounts for around 5% of all work-related cases of depression.[75]

Interventions

A range of school-based anti-bullying programs exist. Effective programs include a hybrid of skills-building activities that support students to develop social and emotional competencies and learn how to respond effectively to bullying behaviours, and whole-of-setting elements that focus on setting, modelling and monitoring behavioural expectations and creating a positive school climate.[76] A recent systematic review and meta-analysis found these programs can reduce bullying perpetration by up to 20% and victimisation by up to 15%.[77] Other reviews have found similar benefits.[78] [79] [80] Another review found that whole-school bullying interventions that include classroom and extra-curricular components can reduce the levels of bullying, and result in reductions in depression and anxiety symptoms and improved levels of mental wellbeing.[81]

Cyberbullying is also a significant problem that can have serious impacts on people's mental wellbeing. Anti-cyberbullying legislation and programs have been created to tackle this harm. A recent systematic review and meta-analysis found that cyberbullying intervention programs can reduce cyberbullying perpetration by approximately 10%–15% and cyberbullying victimisation by approximately 14%. The focus should therefore be on encouraging uptake of these programs.[82]

While workplace bullying is also prevalent and linked to work-related depression and anxiety conditions, the evidence base around workplace anti-bullying interventions is less robust than school-based programs. A recent Cochrane systematic review found that one organisational-level intervention – Civility, Respect, and Engagement in the Workforce – produced a small increase in civility that translates to a 5% increase from baseline to follow-up, as well as a small decrease in workers experience of incivility from their supervisor, but not from co-workers. The review also found that an expressive writing intervention produced some small reductions in bullying, while a multi-level program combining organisational policies, stress management training, and training to raise awareness of negative behaviours did not produce any reductions in workplace bullying.[83]

Racism and discrimination

Overview

Racism is associated with an increased risk of experiencing mental health conditions as well as with poorer physical health.[84] [85] Racism and discrimination are particularly powerful issues for Indigenous peoples globally, including Aboriginal and Torres Strait Islander people in Australia where they are both associated with poorer mental health and wellbeing among young people and adults.[86]

There is also considerable evidence to show that LGBT people on average experience higher rates of depression, anxiety and substance use conditions and suicidality than non-LGBT people.[87] [88] [89] The reasons vary, but research also shows that individuals from sexual and gender diverse minority groups experience high levels of rejection, personal abuse, physical assault, prejudice, and homophobic and transphobic discrimination, which creates high stress levels and an increased risk of mental health conditions. This is often referred to as minority stress.[90] [91] [92] [93]

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[*] VicHealth uses the acronym LGBTIQ, which stands for lesbian, gay, bisexual, trans and gender diverse, intersex, queer and questioning. Other acronyms (e.g. LGB, LGBT, LGBTQ) are used in this evidence review where the reviews and studies being reported specifically refer only to those groups.

Interventions

Anti-racism interventions typically rely on laws, regulations, and public education approaches. Compared to the research on the health and mental health effects of racism, there is relatively little published research on primary prevention interventions. One approach that focused on intergroup contact showed some reductions in prejudice among the majority group participants, although not on mental health outcomes.[94] A recent review of interventions to prevent and reduce online hate, much of which is racist, found that interventions focus on three different areas: technological, legal, and internet literacy and counter speech. This review found no rigorous evaluation and a lack of evidence for effectiveness of any of these strategies.[95]

From a policy perspective, racism and discrimination are covered by Commonwealth, state and territory laws and regulations. However, evidence for their impact in preventing mental health conditions is currently limited, due to the lack of research in this area.

The primary prevention of homophobic and transphobic prejudice and discrimination is a relatively new area of study, and there is a relative dearth of systematic reviews. One systematic review examined studies that aimed to decrease bias and prejudice towards LGBTI patients among healthcare providers. This review found the 13 studies included in the review produced mixed results, with some having some impact on generating more positive student or healthcare provider attitudes toward LGBTQ patients, while other studies found only anecdotal evidence of positive attitude changes, or no evidence of changes in attitudes, and none examined actual changes in patient outcomes.[96]

Another review of qualitative research into the prevention of homophobia found many participants described interventions as “eye-opening,” however they noted that interventions quite often produced hostile reactions and some participants rejected the interventions altogether, but this review did not report any specific quantitative outcomes from these anti-homophobia programs.[97]

However, an earlier narrative review of safe school type programs, found that within schools whose policies and programs around homophobia or transphobia were unclear or non-existent, LGBT youth were not as psychologically secure, whereas LGBT students who attended schools where safe school policies and programs were visible, experienced more positive psychological outcomes.[98]

Perinatal mental health

Overview

Perinatal mental health conditions are distressing for parents and are risk factors for poor infant, child and adolescent mental health.[99] A range of factors are associated with the development of perinatal mental health conditions including sleep problems, lack of social support, not living with partner, intimate partner violence, multiple births, and alcohol, cigarette, and substance use.[100] [101] [102] [103] [104]

Interventions

Improving parental mental health through primary prevention strategies or screening and early intervention for perinatal conditions can help to avert child and adolescent mental health conditions. Antenatal CBT or interpersonal therapy (IPT) based psychoeducation programs are both effective in preventing perinatal depression.[105] [106] Physical activity during pregnancy can also protect against postnatal depression.[107] [108] Routine screening and referral for support and treatment are also vital.

Parenting style and family climate

Overview

Attachment has a highly influential impact on child, adolescent and adult mental health. Attachment refers to the emotional bond between a child and their caregiver(s). Secure attachment is associated with a decreased risk of mental health conditions while insecure-avoidant, insecure-resistant, and disorganised attachment are associated with an increased risk.[109] [110] [111]

Parenting style is also important. Harsh or authoritarian parenting, inconsistent discipline, inter-parental conflict, overprotection/control and criticism/lack of warmth are risk factors for anxiety and depression.[112] [113] By contrast, authoritative parenting styles, positive parent-child relationship, higher levels of parental warmth and support, and higher levels of autonomy granting, are associated with lower levels of depression and anxiety in adolescence and adulthood across cultures.[114] [115] [116] [117] The interaction between a child's temperament and parenting style is particularly important. For example, children with an inhibited temperament who also experience overinvolved/protective parenting are at higher risk of experiencing anxiety conditions than other children with an inhibited temperament. [118]

The broader family environment also plays a role. Poor intra-family relationships are associated with higher levels of anxiety and depression among children and adolescents.[119] By contrast, immediate and extended family support, eating meals together, trust and fairness in the family, high family cohesion, a positive family climate and parental involvement are key factors that contribute to resilience in children, especially those who have faced childhood adversity.[120] [121] [122]

Interventions

Parenting programs are among the most well-studied, and evidence-based approaches to the prevention of emotional and behavioural disorders among children and adolescents. A wide range of programs exist and can be delivered through one-on-one sessions, small group workshops in community settings or in early learning services and schools, or through online delivery.

Generally, such programs focus on enhancing protective factors and reducing risk factors that relate to attachment, parenting style, parent-child interactions, family climate and child and adolescent development. Experimental trials and systematic reviews have consistently found such programs reduce the likelihood of internalising (emotional) and externalising (behavioural) conditions among children and young people.[123] [124] [125] [126] Examples of effective programs available in Australia include Triple P, Strengthening Families, Tuning into Kids and Tuning into Teens, and Partners in Parenting, while examples from other countries include The Incredible Years program from the USA.[127]

Psychosocial skills and resilience

Overview

Resilience is defined as the ability to maintain or quickly regain psychological equilibrium in the face of adversity. Resilience is associated with decreased likelihood of experiencing a mental health condition. Resilience is a complex, multi-dimensional construct. It results from various personal attributes as well as social supports and other resources that a person has access to and utilises effectively.[128] [129]

Personal skills and attributes include high self-esteem, perseverance and determination, good problem solving, good self-regulation, high distress tolerance, social competence, intelligence, an internal locus of control, and optimism.[130] [131] [132] [133] External factors include positive parenting and family environment; having support from at least one supportive adult as a child; peer support; school engagement; and involvement in sports, local clubs, religious and other extra-curricular activities.[134]

Interventions

There are numerous skills-building programs that focus on boosting the psychosocial protective factors that contribute to resilience. The majority are designed for primary and secondary school-based delivery and include social and emotional learning (SEL), resilience building, and disorder specific prevention programs. While sometimes considered separately, these various school-based skills-building programs share many similarities.

Each focus on equipping children and adolescents with the psychological and interpersonal skills needed to build positive relationships, regulate their emotions and behaviours, make healthy behaviour choices, and manage life's challenges and hardships. They draw on strategies derived from psychological therapies (e.g. cognitive behaviour therapy, interpersonal therapy, problem solving therapy) and/or positive psychology (e.g. mindfulness-based stress reduction).[135]

A substantial number of systematic reviews and meta-analyses of school-based skills-building programs consistently indicate that as a group, such programs are effective in preventing the occurrence of depression, anxiety conditions and substance use conditions.[136] [137] [138] [139] [140] [141] [142]

Impacts, as measured by effect sizes, vary according to whether interventions are targeted to all students (universal), those at higher risk of experiencing these conditions (selective), or those with some early subthreshold symptoms of depression and anxiety (indicated) with universal programs generally having smaller effect sizes and indicated having larger effect sizes. Programs that draw on cognitive behaviour therapy (CBT) strategies and mindfulness are more effective at averting the occurrence of depression and anxiety conditions than other approaches.[143] [144] [145] [146] Both teacher and externally implemented programs show positive effects.[147] Examples of effective programs include FRIENDS for Life, Penn Resilience Program, Resourceful Adolescent Program, Promoting Alternative Thinking (PATHS), Cool Kids, the Good Behaviour Game and Climate Schools.[148] [149] [150]

There is also good evidence for the effectiveness of skills-building interventions among university students. Interventions that have been trialled among this cohort include psychoeducation, relaxation, CBT-based strategies, mindfulness, meditation, yoga, and social skills interventions, with interventions delivered in small groups or class groups.[151] [152] Skills-training interventions without supervised practice do have a modest effect on anxiety symptoms, but not on other mental health outcomes. Psychoeducation interventions also have a modest effect on anxiety symptoms, but no significant effect on depression or other wellbeing measures.[153] Primary preventative interventions delivered online, such as social skills programs, cognitive behavioural, acceptance and commitment, and mindfulness approaches, relaxation, and interactive gaming interventions are also effective in reducing anxiety and depression symptoms for university students.[154] [155]

Among adults, psychological 'self-care' strategies derived from health, clinical or positive psychology, such as behavioural activation, relaxation training, structured problem solving, cognitive reframing, signature strengths, gratitude, compassion training, and mindfulness also contribute to the prevention of depression and anxiety conditions.[156] [157] [158] [159] Self-care strategies can be adopted as single strategies or multiple strategies in a person's day-to-day life. They can be taught face-to-face or through online programs. A recent systematic review of online prevention-focused psychological interventions, including CBT, acceptance, and commitment therapy, and psychoeducation-based strategies, had a small positive effect on reducing depression and anxiety symptoms.[160] [161]

Several systematic reviews relating to the prevention of depression have found that psychological interventions can reduce the risk of depression by 22% on average when compared with control groups.[162] [163] [164] A recent meta-analysis of psychological strategies to prevent anxiety found an

overall 43% reduction in the incidence of anxiety across the 29 randomised controlled trials (RCTs).[165] The effect size of most psychological skills-building depression and anxiety prevention initiatives is small to medium ranging from 0.13-0.32 for anxiety prevention and similar levels for depression.[166]

Social support and social connection

Overview

Social support and social connection are significant protective factors for physical and mental health conditions and both contribute to resilience. A recent systematic review found that people who feel they have someone who will provide emotional support or provide them with practical or material assistance, have lower levels of depression than others in the population.[167] Studies have also found a positive relationship between high quality social relationships (variously defined) and subjective wellbeing across all ages. These studies suggest that the quality of relationships is more important than the quantity, although there is also evidence that a large and diverse social network is also protective against depression.[168]

Among adolescents, positive relationships with teachers and good peer support are associated with lower anxiety and depression, particularly among rural adolescents.[169] High social support is also important for adolescents who have experienced child maltreatment or other childhood adversity and is also a protective factor for LGBTQ adolescents.[170] [171] [172] [173] Social support is also a protective factor against mental health conditions for female heads of households, LGB adults aged over 60, and for people living in drought.[174] [175] [176] Although aspects of social media use have been identified as a risk factor for poor mental health and wellbeing, some studies suggest that the social support available through online social networks is associated with increased emotional support and belonging which in turn are protective factors for mental health.[177]

By contrast, loneliness is a significant mental health risk factor and is also associated with poor physical and mental health and early death.[178] [179] Widowhood is also linked to higher rates of depression and anxiety among widowed men and women and among people aged under 65 and over 65.[180]

Interventions

Youth mentoring programs have been used to reduce the risk of behavioural disorders among young people. An adult mentor is matched with a young person and provides social support and engages in shared activities with the young person but does not provide any psychotherapeutic interventions. There is evidence to suggest that such programs can improve young people's social and emotional skills and reduce their risk of behavioural disorders, substance use and criminal offending.[181] [182]

Most social support programs have targeted older people in an attempt to reduce loneliness. Several interventions have been found to be helpful including:

- social facilitation and leisure skill interventions[183]
- mindfulness-based group intervention programs[184]
- educational interventions with a psychosocial component and shared activities such as a chorale group or group aerobic activity[185]
- various technological interventions such as computer and internet training by volunteers, tele-care interventions, video game and 3D programs, a personal social management system to support social connectivity, online support groups, information sites, interactive sites, bulletin boards, self-help groups, and chat rooms.[186] [187] [188]

Technological interventions can also assist parents to extend their social supports. One high quality systematic review examining the effectiveness of internet-based peer support programs for parents found these support groups were effective at improving emotional support for mothers, providing affirmation and information for fathers in their transition to fatherhood, and providing parents with information exchange and connection with other parents.[189]

Befriending is another approach that has been trialled to reduce loneliness. Befriending is an emotional supportive relationship in which one-to-one companionship is provided on a regular basis by a volunteer. However, a recent systematic review of befriending interventions, which included five studies targeting loneliness, found no evidence that befriending reduced loneliness.[190]

Health behaviours

Overview

A person's level of physical activity, diet quality, sleep pattern, smoking habits, drinking patterns and use of illicit drugs all have an impact on their mental health and wellbeing and can be protective where these behaviours are healthy, and risk factors where these behaviours are unhealthy. For example:

- Individuals who smoke are twice as likely to experience depression than former smokers or never smokers, and smoking has also been linked to an increased risk of psychosis, and the onset of psychosis at an earlier age.[191] [192] [193] Alcohol and cannabis use can also lead to an increased risk of depression while cannabis use is also linked to higher rates of psychotic disorders.[194] [195]
- Regular physical activity protects against the onset of depression.[196] A prospective cohort study, found that: "12% of future cases of depression could have been prevented if all participants had engaged in at least one hour of physical activity each week".[197] Being active in the outdoor environment, in particular green and blue natural environments, has positive mental health benefits with reductions in depression and anxiety symptoms.[198]
- Research shows highly consistent associations between diet quality and depression risk. People who consume low quality diets are at higher risk for depression than people who consume high quality diets (e.g. high intake of fruit and vegetables, fish, and whole grain products), independent of socioeconomic factors, lifestyle behaviours and body weight. These relationships do not appear to be explained by reverse causality.[199] [200] [201] There is also emerging evidence that early life nutrition is a risk factor for mental disorders in young people, pointing to the importance of addressing the food environment to aid in prevention efforts.[202] [203] [204] Dieting in adolescence is associated with an increased risk of depression.[205]
- Adequate sleep is important to physical and mental health. Children and adolescents with poor sleep patterns have an increased risk of experiencing depression.[206] [207]
- Excessive time spent on computers, mobile phones and other screens devices is associated with mental health conditions among children and adolescents.[208]

Interventions

The health behaviours described above are also linked to the development of chronic health conditions such as diabetes, cardiovascular disease and cancers and have therefore long been the focus of primary prevention efforts in the 'physical' health sphere. While there have been relatively few studies that focus on preventing mental health conditions through changes in these health behaviours, it is likely that interventions that target these factors for the prevention of physical health conditions will also contribute to the prevention of depression and anxiety, and other conditions.

Indeed, there is evidence that improving diet quality can reduce subthreshold depressive symptoms among young people and adults in the general population, as well as among people with major

depression.[209] [210] There is also good evidence that exercise during pregnancy can prevent perinatal depression.[211] In addition, several studies have found CBT-based strategies can improve sleep among children and young people, and this in turn can lead to a reduction in the likelihood of depression.[212]

School factors

Overview

High quality school environments characterised by positive student perceptions of school safety, teacher support, belonging and connectedness are linked to higher levels of psychosocial wellbeing and decreased mental health conditions among children and young people.[213] [214] By contrast high-demand academic environments and school bullying are associated with increased prevalence of mental health conditions.

Interventions

Whole-of-school mental health promotion initiatives have been trialled to prevent mental health and substance use conditions among children and adolescents. A whole-of-school approach focuses on curriculum, teaching and learning (how and what children and young people are taught); the physical and social environment (school ethos and positive climate) and family and community partnerships.[215] [216] [217] Whole-of-school programs aim to influence a range of risk and protective factors within schools including macro factors such as school climate and student connectedness, interpersonal factors such as bullying, peer relationships, and teacher-student relationships, and micro factors such as students' social and emotional skills. While there is some evidence to show these whole-of-school approaches improve child and adolescent mental health it appears that, to be effective, these approaches need to include the social and emotional learning (SEL), resilience or condition specific prevention programs described above, as well as anti-bullying initiatives.

Socioeconomic factors

Overview

While mental health conditions may affect people of all ages and backgrounds, their prevalence is heavily influenced by people's living conditions and social position.[218] [219] [220] [221] [222] People with lower levels of educational attainment, or who experience unemployment, homelessness, or live on low incomes are more likely to experience a mental health condition than people from more advantaged backgrounds.[223] [224]

This social gradient occurs along a continuum with children, young people and adults at the higher end of the socioeconomic spectrum having lower rates of illness than people in the mid-range, who in turn have lower rates of illness than people at the lower ends of the spectrum. This gradient is the result of differences in people's social position as a result of gender, race, ethnicity, disability or geographic location, and their education, employment, income, housing, and other socioeconomic circumstances rather than to intrinsic individual differences.[225]

Within this context, job loss, underemployment and unemployment are associated with poorer mental wellbeing, while employment and reemployment is protective for mental health and associated with a lower risk of depression.[226] [227] [228] [229] [230] Similarly, at an individual level, having fewer economic resources is associated with higher levels of anxiety.[231] People who are in debt also experience higher levels of suicidal ideation and depression than others.[232] At a country level, income inequality within communities is also associated with mental health conditions with higher rates of inequality linked to higher prevalence rates compared to lower inequality rates. [233]

Homelessness is another factor that is associated with an increased risk of mental ill-health among children, young people and adults.[234] [235] [236] In addition, housing design may have some influence

with evidence showing that older people who live in houses with architectural features that promote interaction between residents and people walking past the house are associated with perceived social support, which in turn is associated with reduced psychological distress.[237] People living with more green space around their home also have lower levels of depression and anxiety.[238]

Interventions

Healthy public policy has been instrumental in achieving change in relation to smoking, alcohol and substance misuse, and road trauma. While public policy approaches for the prevention of mental health conditions have received less attention, there are nevertheless existing laws, regulations and policies that are probably making an important contribution.

There is a plethora of public policy measures targeted at improving employment outcomes, they are rarely evaluated for their mental health impacts. Studies of welfare policies, such as Active Labour Market Programs (ALMP), have found that the threat of compulsory participation in employment-related activities leads to a significant number of people withdrawing from welfare-receipt just prior to ALMP participation requirements commencing. However, there is some evidence that a combination of ALMP, jobs diary, education, entrepreneurship, and skills-development interventions are effective at addressing youth unemployment while case management, employment services or subsidised employment are not effective.[239] [240] [241]

Similarly, a range of interventions have been trialled to improve housing stability and reduce homelessness; however, very few studies focus on the role of such programs in preventing the onset of mental health conditions.[242] Some studies have focused on pregnant women and have trialled various interventions including supportive housing with intensive case management, a community-based case management program for 9 months, a modified therapeutic community, and an ecologically based intervention with mother's own choice of apartment, with rent and utility assistance for 3 months. Each intervention involved intensive case management and support. Compared to control groups, more women in the housing interventions attained stable housing or more days in housing compared to control groups including women receiving treatment as usual. Importantly, many of the housing interventions were also associated with improvements in maternal and child mental health.[243]

Other studies have examined the impacts of housing interventions for families. A review of these studies found that paid rehousing approaches (with 2–6 months of rental assistance and case management), transitional housing and access to intensive services, permanent housing subsidy, and permanent supportive housing for as long as needed (with on-site services and intensive case management) were effective in helping families settle in stable housing, although some studies showed that ongoing subsidies were necessary to assist families to maintain their housing. The majority of interventions included case management, with regular meetings with participants, and several interventions also included access to integrated services and instrumental support.[244]

Other homelessness prevention interventions that have been studied include high-intensity case management, abstinence-contingent housing programs, non-abstinence-contingent interventions, and housing vouchers (financial support towards own-choice housing). High-intensity case management appears to be an important ingredient for successful housing interventions. Programs that include this element were effective in increasing stable housing, at post-intervention and at 12–18-month follow-up, compared to usual housing services. High-intensity case management was also effective at reducing the number of days people were homeless. Both abstinence-contingent and non-abstinence-contingent services were also effective at reducing homelessness and improving

housing stability, but interventions that provided predominantly financial assistance had mixed findings.[245]

More recently, there have been increasing concerns about the mental health impacts of the economic lockdown measures needed to contain the COVID-19 pandemic that have resulted in a rise in financial stress and unemployment. The Federal and Victorian State governments have taken significant steps to reduce the mental health impacts of these lockdown measures, including increasing the unemployment benefit by $550 (JobSeeker), providing wage subsidises to employers to retain staff (JobKeeper), reimbursing a percentage of businesses' PAYG payments, providing small grants (e.g. Victorian Government Business Support Grants), and other support and stimulus measures. While research evidence for the impacts of these initiatives are yet to be gathered, it is likely that they will reduce the likelihood of new onset mental health conditions and suicide that are known to occur during pandemics and major economic downturns.

In summary, while public policies that aim to achieve greater equality and more equitable access to social determinants such as education, work, income and housing are likely to contribute to the prevention of mental health conditions, at this stage there is very little research into whether such initiatives may help to prevent mental health conditions.

Workplace factors

Overview

While work is generally a protective factor and unemployment is a risk factor for poor mental health, certain work-related factors can also increase the risk of depression, anxiety, and PTSD. Key workplace psychosocial risk factors include high (or low) demand/low control/low support jobs; high effort/low reward and recognition; poor procedural or organisational justice; interpersonal conflicts, bullying (as outlined above), harassment and discrimination; poor line management; poorly communicated organisational change; low job security; exposure to workplace violence or trauma; and a low psychosocial safety climate (PSC).[246] [247] [248] [249] [250] [251] PSC refers to employees' perceptions of whether their employer takes their mental health and wellbeing seriously and is committed to taking steps to prioritise this.[252]

Interventions

While there have been long-standing efforts to prevent physical injury and illness in the workplace, the prevention of psychological injury and workplace-related mental health conditions is a relatively new area of endeavour. Broadly speaking, many current workplace-based prevention programs focus on individual workers with the aim of assisting them to better manage personal and work-related stressors (i.e. stress management or resilience programs) while others focus on influencing the organisational factors that may contribute to poor mental health.

There is now growing evidence that workplace programs can reduce stress and prevent work-related mental health conditions. Successful employee-focused strategies include those that promote healthy behaviours (e.g. diet and exercise), CBT-based stress reduction courses, employee resilience training, and workplace mindfulness programs delivered face-to-face or through online mechanisms.[253] [254] [255] [256] [257] [258] [259] Studies that combine various approaches (e.g. CBT, acceptance and commitment therapy approaches and mindfulness) are more effective than single approaches.[260]

There is also good evidence that organisation level initiatives can enhance job satisfaction; improve group cohesion, teamwork, and employee initiative; reduce staff turnover; improve employee wellbeing; and reduce work-related stress and mental health conditions. Such interventions include:

- leadership and manager training and development
- communication and cooperation-based programs
- shared social activities and other workplace social capital interventions
- employee participatory strategies
- interventions to reduce workload or increase workers' control over their work
- flexible work arrangements that promote work-life balance
- workplace anti-bullying programs.[261] [262] [263] [264] [265] [266] [267] [268] [269] [270]

Local community factors

Overview

Community levels factors have also been shown to influence the onset of depression among children and young people. A recent systematic review and meta-analysis found a significant association between community safety and ethnicity-based discrimination and depressive symptoms in school-aged children.[271] Among people aged 50 years or older in high-income countries, perceived neighbourhood disorder and lack of social cohesion are significantly associated with depression, and this association is even higher among post retirees.[272] By contrast, high social capital can be protective and reduce the risk of mental health conditions.[273] [274]

Interventions

Place-based community-level approaches aim to tackle multiple community-level risk and protective factors. Place-based community mobilisation approaches – sometimes referred to as collective impact approaches – encourage broad-based community participation and decision making with respect to defining the nature of the problem and possible solutions. External organisations work to support local community members and other key stakeholders to define the problem, determine the underlying risk and protective factors, generate possible solutions and then review these against research evidence. The external organisations work to build the capacity of the local community to implement their chosen strategies and monitor the impacts of these activities. By their nature, these initiatives allow for the development of locally relevant solutions.[275]

While such approaches have been used for the prevention of substance use conditions and obesity, such as Planet Youth, Communities that Care, and the Global Obesity Centre at Deakin University, there are no programs reported in the literature that target the prevention of mental health conditions as a primary outcome.[276] [277] [278] [279] [280] However, community-level programs targeting other outcomes, such as obesity, have been found to have positive outcomes on mental health presumably through their impact on shared risk factors.[281] [282]

Other risk and protective factors

A range of other risk and protective factors have been found that are associated with mental health conditions including:

- **Health and wellbeing:** obesity and various chronic illnesses are associated with an increased likelihood of depression and anxiety conditions among young people and adults.[283] [284] [285] Certain sensory impairments such as hearing loss are also linked to mental ill-health.[286] These factors highlight the importance of prevention of chronic illness, or effective management.
- **Major life stressors**: such as relationship breakdowns, financial problems, becoming unemployed, and poor health, are risk factors for depression and other mental health conditions.[287] They are implicated in first onset, as well as in the relapse of existing conditions. While some of these stressors, such as unemployment, can be averted through primary prevention initiatives, others are harder to avoid, and the current emphasis is on helping people

to work through these challenges successfully through resilience and self-care skills-building approaches.

- **Being a carer:** caring for someone who is critically ill, is experiencing dementia, or a mental health condition is associated with a higher risk of depression and anxiety than others in the general population.[288] [289] [290] [291]
- **Factors associated with migration and refugee status:** first generation migrants have a higher prevalence of depression than the general community, as do many refugees, in particular war refugees, children and adolescents without accompanying parents, asylum seekers and detained refugees.[292] [293] [294] [295] [296] Unaccompanied refugee minors are less likely to develop depressive symptoms if they are placed in foster care with people from the same ethnic background.[297] In Australia, there is evidence that certain migrant groups have an increased risk of psychotic disorders such as schizophrenia.[298]

6. The economics of prevention

The costs of mental ill-health

The economic impacts of mental health conditions for individuals and society are profound. Mental health conditions are a major contributor to social disadvantage and poverty. It is estimated that around 20% of people with a moderate mental health condition and around 36% with a severe condition are living in poverty.[299] Ultimately the link between mental health conditions and poverty is bidirectional, with each increasing the risk of the other. This can lead to a vicious cycle with mental health conditions contributing to disadvantage and vice versa, which may contribute to the intergenerational transmission of poverty.[300]

At a societal level, the estimated costs vary according to the methodology used to calculate costs and what costs are included (e.g. healthcare, lost productivity, carer/family costs, lost taxation, housing support, welfare payments).[301] [302] In Australia, several recent reports have attempted to quantify the cost of mental ill-health. [303] [304] [305] [306]

The most recent estimates come from the Productivity Commission which found that in 2018–19, the annual cost to the economy of mental ill-health and suicide in Australia ranged from $43 to $51 billion. Moreover, the cost of disability and premature death due to mental ill-health is equivalent to a further $130 billion. In Victoria, The Royal Commission into Mental Health has estimated that the economic cost of poor mental health to Victoria is $14.2 billion a year. [307]

Cost effectiveness of primary prevention programs

A recent report prepared for the National Mental Health Commission found that nine of the ten prevention interventions they analysed had a positive return on investment, ranging from $1.05 to $3.06 for each dollar invested (see table 3).

A substantial amount of other Australian and international research confirms that many initiatives to prevent the onset of mental health conditions are cost-effective and save money.[308] [309] [310] [311] [312] [313] Prevention initiatives targeted to children and young people are particularly vital to reducing the significant costs associated with responding to mental health conditions as well as related problems such as youth homelessness, crime and unemployment.[314]

Preventing mental health conditions can also save lives. Between 60% and 98% of people who die by suicide have an underlying mental health condition. Preventing these conditions from occurring is highly likely to prevent suicide deaths.[315]

Table 3. Return on Investment (ROI) for selected prevention initiatives.
Source: National Mental Health Commission (2019). *The economic case for investing in mental health prevention. Summary.* Canberra: NMHC.

ROI	Intervention	Target population	Length of costs and benefits	Total costs of intervention	Total savings
3.06	e-Health interventions for the prevention of anxiety disorders in young people	School students aged 11–17 years	10 years	$6.2M	$18.8M
2.87	Educational interventions to reduce older persons' loneliness	Women aged 55 years and above residing in the community	5 years	$25.2M	$72.4M
2.54	Exercise programs for the prevention of post-natal depression	Women at least 4 weeks post birth	5 years	$5.5M	$14.0M
2.40	Parenting interventions for the prevention of anxiety disorders in children	Preschool children aged 4–5 years	3 years	$3.7M	$8.3M
2.14	e-Health interventions to reduce older persons' loneliness	Lonely older adults aged 65 and above enrolled into the Community Visitors Scheme	5 years	$2.2M	$4.7M
1.63	Psychological interventions for the prevention of post-natal depression	Pregnant women	5 years	$14.6M	$23.3M
1.56	School based interventions for bullying prevention	School students aged 8-11 years	10 years	$66.8M	$103.9M
1.19	School based psychological interventions to prevent depression in young people	School students aged 11-17 years	10 years	$31.1M	$37.1M
1.05	e-Health workplace intervention for the prevention of depression	Employees aged over 18 years	11 years	$6.2M	$6.5M
0.28	Face to face psychological workplace interventions for depression prevention	Employees aged over 18 years	11 years	$166.6M	$45.8M

7. Conclusion

This evidence review synthesises the evidence relating to interventions that aim to prevent the onset of mental health conditions in order to answer two main questions: 'Can mental health conditions be prevented?' and 'Can this be achieved through primary prevention activity?'

Based on the available evidence, the answer to both questions is yes.

Overall, there is consistent research evidence to show that mental health conditions are not inevitable, and many common conditions can be prevented from occurring in the first place.[316] [317] Effective primary prevention intervention strategies target one or more risk and/or protective factors and are typically targeted to a particular population cohort and delivered through high reach settings such as online, the home, schools, workplace, local communities.

There is strong and consistent evidence from systematic reviews that programs that promote protective factors such as good parental mental health, secure attachment, positive parenting, and positive family climate can prevent child and adolescent emotional and behavioural conditions.

There is also very strong and consistent evidence from systematic reviews that personal skills-building programs that draw on health, clinical and positive psychology strategies and are delivered through schools, universities, workplaces and online can increase protective factors such as healthy behaviours, social and emotional skills, self-care skills and resilience, and prevent common mental health and substance use conditions.

In addition, there is good evidence that anti-bullying programs in schools; initiatives targeting loneliness and social isolation among older people; whole-of-school and workplace-based initiatives to prevent anxiety and depression; and community-level place-based programs for the prevention of anti-social behaviour and substance use are also effective.

While there is less evidence around what works to prevent child maltreatment and other adverse childhood experiences, intimate partner violence, racism, socioeconomic disadvantage and homelessness it is vital that we invest in research to find new and better ways to tackle these particular risk factors, given their high prevalence and their very strong associations with a wide variety of mental health conditions. Reducing people's exposure to these risk factors will contribute enormously to the prevention of mental health conditions in the community.

In summary, while it is not possible to prevent every person from experiencing a mental health condition – much as we can't prevent every cancer or heart attack – it is nevertheless currently possible to prevent a sizeable percentage of depression, anxiety conditions, behavioural disorders, and alcohol and substance use conditions. Moreover, there is very good evidence to show that prevention initiatives are cost-effective and produce considerable cost-savings to governments.

A major challenge now is therefore to take existing evidence-based initiatives to scale across the Victorian population and ensure they are properly implemented. In doing so, much can be learned from prevention initiatives in other areas of health, such as the prevention of ischaemic heart disease, cancers, and road trauma. Another major challenge is to design and trial initiatives to address the most common risk factors where we still don't know how best to tackle them.

Ultimately, success requires a sustained, multi-modal approach that includes the evidence-based programmatic measures described above, as well as mentally healthy public policies to reduce inequality and improve people's living conditions and social position.

Glossary

Attachment
Attachment is a deep and enduring emotional bond that connects one person to another. It is commonly used to describe the relationship between an infant/young child and their primary caregiver(s). There are different types of attachment including secure, insecure-avoidant, insecure-resistant, and disorganised.

Burden of disease
The burden of disease measures the disability and premature death associated with injuries and illnesses. The summary measure 'disability-adjusted life years' (DALY) measures the years of healthy life lost due to a particular injury or illness.

Effect size
In experimental research, the effect size gives an indication of the magnitude of the impact of an intervention. The larger the effect size, the larger the difference between the effect of the intervention in the intervention group compared to the control group. Effect sizes are usually classified into small, medium and large. A small effect size still indicates there is a statistically significant difference between the intervention group and the control group, but it is not as great as a medium or large effect size.

LGBTIQ
LGBTIQ stands for lesbian, gay, bisexual, trans and gender diverse, intersex, queer and questioning. It is an inclusive umbrella abbreviation to encompass a range of diverse sexualities, genders and sex characteristics. Other acronyms (e.g. LGB, LGBT, LGBTQ) are used in this evidence review where the reviews and studies being reported specifically refer only to those groups.

Odds ratio
An odds ratio (OR) is a measure of association between an exposure (e.g. a risk or protective factor) and an outcome (e.g. a particular mental health condition). The OR represents the likelihood that an outcome will occur given a specific exposure, compared to the likelihood of the outcome occurring in the absence of that exposure.

Primary prevention
Primary prevention aims to prevent the occurrence of a condition in the first place. It works by reducing people's exposure to risk factors and/or increasing their exposure to protective factors for mental health conditions.

Protective factors
Protective factors are biological, psychological, and social variables that reduce a person's likelihood of experiencing a mental health condition. Protective factors can enhance and protect a person's mental health and wellbeing, or buffer against a person's exposure to risk factors and reduce their likelihood of becoming unwell.

Risk factors
Risk factors are biological, psychological, and social variables that increase a person's likelihood of experiencing a condition. Most conditions are multi-factorial and result from a combination of risk factors rather than a single risk factor operating in isolation.

Social determinants of health
The conditions in which people are born, grow, live, work, play and age, which have a major role in shaping health outcomes. These conditions are influenced by the distribution of money, power and resources, and are largely responsible for inequities in health outcomes between population groups.

Appendix: Odds ratios for selected risk and protective* factors

Childhood neglect or abuse[318]
Neglect and depression OR=1.65, Emotional abuse and depression OR=2.35
Physical abuse and depression OR=1.78, sexual abuse and depression OR=2.11
Any child maltreatment and depression OR=2.48
Neglect and anxiety OR=1.34, physical abuse and anxiety OR=1.56, sexual abuse and anxiety OR=1.90
Any child maltreatment and anxiety OR=1.68

Other adverse childhood experiences
Child exposure to IPV and depression OR=1.68[319]
Having a caregiver exposed to four or more ACEs and child depression and/or anxiety OR 3.01[320]
ACEs and anxiety OR 3.7, depression OR 4.4, problem alcohol use OR 5.84, problem drug use OR 10.22[321]

Intimate partner violence
Intimate partner violence and depression RR 2.7 & IPV and postpartum depression RR 1.43.[322]

Bullying[323]
Bullying and anxiety disorders OR 1.52
Bullying and depression OR 1.73

Attachment
Insecure attachment and mental health conditions OR 1.13-1.81[324]

Health and health behaviours
Multimorbidity and depression RR 2.13[325]
Obesity & depression OR 1.21–5.8, obesity & anxiety OR 1.27–1.40, obesity & eating disorders OR 4.5[326]
Alcohol use among young people and depression OR 1.39, smoking among young people and depression OR 1.87, cannabis use among young people and depression OR 1.33[327]
Any cannabis use and psychotic disorders OR 1.4, cannabis dependence and psychotic disorders OR 3.4[328]
Screen time based sedentary behaviour and depression OR 1.28[329]
High quality diet* and depression OR 0.64–0.78[330]
Men - not walking frequently and depression OR 1.32, smoking OR 1.17, high-risk drinking OR: 1.09[331]
Women - not walking frequently and depression OR 1.25, smoking OR 1.99, high-risk drinking OR: 1.43[332]

Socioeconomic factors
Unemployment and depression OR = 2.17 for men and OR = 1.98 women.[333]
Housing disadvantage and anxiety ORs 1.9-2.2, housing disadvantage and depression ORs 1.10-7.86[334]

NB Odds ratios reflects the likelihood that some people exposed to a particular risk factor will experience a mental health condition compared to someone not exposed to that risk factor.
An OR = 1 means the exposed person is **no** more likely to experience the condition than someone not exposed.
An OR > 1 means the exposed person is **more** likely to experience the condition than someone not exposed.
The increased likelihood are reflected in the statistic. For example, if the OR for smoking and depression = 2, this means someone who smokes is **twice as likely** to have depression than someone who does not smoke.
An OR < 1 means the exposed person is less likely to experience the condition than someone not exposed.

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VicHealth is committed to health equity, which means levelling the playing field between people who can easily access good health and people who face barriers, to achieve the highest level of health for *everyone*.

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