MENTAL ILLNESS FELLOWSHIP
of Australia Inc

Literature Review:

The Physical Health of People Living With a Mental Illness

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Executive Summary

Mental health and physical health are inextricably linked. People with serious mental illness (SMI), such as schizophrenia and mood disorders, have higher rates of physical illness than the general population [1] [2, 3]. They also have physical health problems that often remain undetected or untreated [4]. Up to 50% of people with serious mental illness have recognisable medical disorders and about 20% have medical problems that may explain or exacerbate their psychiatric condition [5, 6]. The additive effects of co-occurring physical illness and mental health problems often produce worse overall health outcomes [4].

The presence of a greater number of physical health problems is reported to contribute to more severe psychosis and depression [7]. Research has also shown that people with severe or chronic physical illnesses often have a co-existing mental health problem [4]. Poor physical health is associated with poorer mental health.

Many health care systems do not adequately provide an integrated approach for physical and mental health care. Generally mental health care is provided by one organisation and physical health care from a different system. In some cases, one condition may be receiving adequate attention while the other is not [4]. The consequence of fragmented or incomplete care is that the individual does not receive appropriate holistic care that looks at the "whole person". Consequently these individuals may have a lower life expectancy and a poorer quality of life.

Key Recommendations

Improvement to physical health should remain a KPI for all MIFA members

Based on the evidence of the current literature, there is an urgent need for mental health and wider health services to develop more effective and innovative practices to target and improve the physical health of people with SMI. Programs need to be individualised, recovery focused, goal-orientated, supportive and build on the participants' strengths and capabilities.

All programs should include a strong element of peer work

Like many programs in the recovery sector, program design, or re-design will profit from a strong element of peer work. Peer workers share a common experience of mental illness, as experienced by the people with whom they work and they are able to provide practical support. This will be equally true of effective programs in the wider community health sector, which mental health service providers can advocate for and work in partnership with.

Effective self-management of physical health should be the key goal

Interventions should be designed on an individual basis, using the available evidence and utilising community resources and social support systems, including peer leaders and integrated with other supports. Effective self-management support will include practices that develop stronger problem

solving skills, increasing self efficacy, improved self worth and increases in the person's ability to handle a range of life situations. Program design needs to be viewed from the individuals' perspectives, considering their goals, priorities, values and needs.

Formal evaluation of outcomes should be built in to all new initiatives

As a matter of routine, all programs should aim to follow up at least a cohort of participants at regular intervals such as 1, 2 and 5 years after involvement in a program with a physical health and well-being component. As well as standard measures of health-related outcomes, qualitative evaluation should include the individual's opinion of the effectiveness of the program and the benefits derived by his/her involvement in the program.

Literature Review

Mortality

People with serious mental illness (SMI) are reported to have a life expectancy of between 10-20 years less than that of the general population [8-11]. Individuals with SMI have a three-fold increased risk of premature death and a shortened life expectancy [12, 13]. Schizophrenia has been described as a "life shortening disease" [14], [15]. Death rates from all main causes are higher in people with mental illness [16]. Although suicide accounts for the highest relative risk of mortality, being up to 20 times more common than in the general population [17], approximately three-quarters of the premature deaths of people with SMI are caused by physical illness, with cardiovascular disease being the most common cause of death [10].

Physical Illness

Hospitalisation due to physical disease is common in people with schizophrenia, and is associated with in-hospital mortality [18]. The most common co-morbid physical illnesses experienced by people with SMI include cardiovascular disorders, diabetes, metabolic syndrome, hypertension, respiratory illness and obesity related diseases [1]. These diseases occur at rates higher than the general population, and contribute to the high morbidity and mortality seen in people with SMI.

These diseases not only occur more frequently in people with SMI than the general population, they also occur at an earlier age. Once the disease is present the five year survival rate for people with SMI is lower than those without mental health problems. For example:

- 31% of people with schizophrenia and coronary heart disease (CHD) are diagnosed under the age of 55, compared with 18% of others with CHD. After five years, and adjusting for age, 22% of people with CHD who have schizophrenia have died, compared with 8% of people with no serious mental health problems.

- 41% of people with schizophrenia and diabetes are diagnosed under the age of 55, compared with 30% of others with diabetes. After five years, 19% of people with diabetes who have schizophrenia have died, compared with 9% of people with no serious mental health problems.

- 21% of people with schizophrenia who have a stroke are under 55, compared with 11% of others who have a stroke. After five years, 28% of people who have had a stroke and who also have schizophrenia have died, compared with 12% of people with no serious mental health problems.

- 23% of people with schizophrenia and respiratory disease are diagnosed before the age of 55, compared with 17% of others with respiratory disease. After five years, 28% of people with respiratory disease or chronic obstructive pulmonary disorder who also have schizophrenia have died, compared with 15% of people with no serious mental health problems [19].

Cardiovascular Disease (CVD)

People with SMI have rates of CVD 2-3 times higher than that of the general population [10, 20]. Cardiovascular deaths account for a third of all deaths in patients with schizophrenia [21]. CVD occurs at an earlier age in people with SMI compared to the general population [12].

There is a high prevalence of modifiable risk factors contributing to the excess CVD [12]. The risk factors associated with CVD include obesity, hypertension, smoking, diabetes, hyperlipedemia, insufficient exercise and poor diet. People with mental illness often relate to many of these risk factors, and these are conditions and/or health behaviours that can be prevented and/or minimised [3] [22] [23] [24].

Antipsychotic treatment may also worsen CVD risk factors, but forms an essential component of the treatment of people with SMI, and overall reduces mortality [12].

Cancer

It has been reported that people with SMI are more likely to develop cancer. Cancers, especially breast cancer and lung cancer, are the second most common cause of death in people with schizophrenia [4]. It was found that women with schizophrenia are 42% more likely to get breast cancer than other women, and people with schizophrenia are 90% more likely to get bowel cancer than the general population [25, 26]. Another study [16] did not find increased incidence of cancer in those with mental illness, but did find that the death rate from cancer in those with mental illness was substantially higher. This high death rate could be associated with the difficulty people with mental illness have accessing health care, including cancer screening programmes. As a result their cancer may be missed or diagnosed later, resulting in a less favourable prognosis.

Diabetes

Diabetes occurs in approximately 15% of people with schizophrenia. This is three times higher than that of the general population [27]. Studies have suggested the prevalence of known diabetes in people with schizophrenia is grossly underestimated [28], with the majority of people unaware that they have this condition [29]. The rates of undiagnosed diabetes are reported as being up to 70%, which may result in prolonged periods of poor glycaemic control [30, 31].

Some reports in the literature have questioned whether there is a link between atypical antipsychotic drugs and diabetes [32], while others refute this, indicating there is not enough evidence to establish the link [27]. In 1879 Sir Henry Maudsley in "*The Pathology of Mind*" noted an association between diabetes and schizophrenia. The risk factors associated with diabetes include family history of the disease, physical inactivity and poor diet [27]. Up to 50% of people with schizophrenia have a family history of type 2 diabetes [33, 34].

Diabetes is considered one of the most psychologically demanding chronic illnesses. It requires a strict daily routine, and individuals frequently need to make extensive changes to their life in order to manage the illness. This can cause substantial stress and negative affect which impacts on the person's quality of life and the ability to adhere to the new lifestyle changes [4].

Mental illness has been found to impact negatively on diabetes. Individuals experiencing both mental illness and diabetes may have trouble adhering to the necessary dietary restrictions, medication regime and blood glucose monitoring. This results in worse clinical outcomes [35] and increases their risk for developing complications such as heart disease, blindness, stroke, kidney disease, nerve damage and reduced blood flow sometimes necessitating amputation [4].

People with schizophrenia or bipolar disorder who also have diabetes have a relatively higher mortality rate compared with those with diabetes alone. People with SMI and diabetes have a significantly increased risk of death, even after adjusting for age and gender, with hazard ratios for schizophrenia and bipolar disorder. This suggests that diabetes either progresses more rapidly or is less well controlled in these individuals, or that they have higher levels of co-morbidity and so are more likely to die of other causes [36].

Respiratory Illness

Those with mental illness have higher rates of hospitalisation and death, due to respiratory illness such as Chronic Obstructive Pulmonary Disease (COPD), bronchitis and emphysema compared to the general population [16]. Higher rates of respiratory symptoms such as cough, shortness of breath and wheezing are also noted. The higher rates of respiratory illness in those with mental illness are likely associated with the increased rates of smoking in this population.

Metabolic syndrome

Metabolic syndrome is a combination of medical symptoms and problems such as increased blood pressure, elevated insulin levels, abnormal or high cholesterol levels and generally excess body fat around the waist area. Metabolic syndrome increases the risk for cardiovascular disease and diabetes. Consequently a person with metabolic syndrome needs to make significant changes to his/her lifestyle and habits to avoid developing these diseases. Metabolic syndrome is common in people with schizophrenia [37]. It has been found that 52% of people on high potency antipsychotics had metabolic syndrome [38].

Obesity

Studies have found higher rates of obesity and poor nutrition in those with chronic mental illness [16]. Higher levels of obesity in any population can be linked to overeating, underactivity, lack of awareness of healthy dietary principles, or inability to follow a healthy diet plan due to emotional or cognitive problems.

Significant weight gain is a side effect of many antipsychotic medications, some anti-depressants and mood stabilisers, with 40% to 80% of individuals on second generation antipsychotic medications gaining up to 20% of their ideal body weight. Specific medications are known to be associated with the most weight gain [39-42].

Obesity has been linked to co-morbidity, with rates of obesity increasing in line with the number of chronic illnesses [43].

Osteoporosis

Decreased bone mineral density has consistently been found in people with schizophrenia [44, 45] and other mental illnesses, compared to healthy people without mental illness. The increase in prolactin levels, associated with antipsychotics has been identified as a possible causative factor in decreased bone mineral density [46, 47], [48], [49], but lifestyle factors also play an important role in the development of osteoporosis. Lifestyle factors that may contribute to the development of osteoporosis include a sedentary lifestyle, lack of exercise, smoking, alcohol and drug use, dietary and vitamin deficiencies, decreased exposure to sunlight and electrolyte disturbances caused by polydipsia [14] [50].

Health Inequalities and Access to Medical Care

People with SMI are reported to have reduced access to healthcare, and to receive insufficient medical assessment and treatment [9]. Physical illness occurs in approximately 50% of patients at the time of diagnosis with schizophrenia. Much of this morbidity is misdiagnosed or undiagnosed [27]. People with mental illness report that healthcare professionals dismiss or ignore physical health complaints. Evidence of this "diagnostic overshadowing" was noted in the report *Equal Treatment – Closing the Gap* [26] where it was found that, when people with mental health problems reported physical ill health, it was viewed as part of the mental health problem and so not investigated or treated.

It is also reported that people with SMI are less likely to receive preventative medical care and screening [51], despite being at high risk for medical morbidity. Physical illnesses are less likely to be diagnosed in those with mental illness, leading to lower hospital admissions and higher than expected death rates [16].

Diagnosis can be further complicated as people with mental illness may have difficulty communicating symptoms of physical illness. They may also be reluctant to discuss their problems [16] as some health professionals assume the symptoms to be psychosomatic in nature [52].

People with SMI are reported to experience significant barriers accessing medical care [53]; they also may have difficulty obtaining and maintaining health insurance. They are more likely to delay medical treatment due to cost or having been unable to obtain appropriate medical care [53]. Even when risk factors are detected, there is evidence of under-treatment [54]. Poor access to medical care will contribute to the high rate of mortality seen in those with SMI.

Studies have demonstrated a lack of medical health treatment in those with mental illness, compared to the general population. For example, the greatest number of excess deaths in people with mental illness is due to heart disease, yet medical procedures to improve blood flow to the heart (revascularisations) are undertaken less often in people with mental illness, particularly those affected by psychosis [16, 55]. Despite the high risks factors associated with mental illness (such as poor diet and smoking) these individuals are less likely to be screened for high cholesterol and less likely to be prescribed the main evidence based treatment: statins which lower cholesterol[26]. In addition, it has been found that people with serious physical illness who also had mental illness were not hospitalised for treatment of the physical health condition nearly as often as those without mental illness, suggesting they do not receive the same level of medical treatment in hospital [16].

Poor quality medical care provided to those with mental illness is linked with higher mortality in those with mental illness compared to the general population. In particular the quality of medical treatment provided to those with cardiac conditions and co-morbid schizophrenia is often suboptimal and may be linked with avoidable excess mortality [56].

People with mental illness have not experienced the same reductions in rates of physical illness as the general community following the implementation of public health campaigns (e.g. heart disease and smoking) [16] suggesting a need for a specifically targeted health promotion program.

Co-morbidity/Dual Disability

A person with co-morbidity (also known as dual disability) is one who is diagnosed with a mental illness and another illness/disability, which may be another mental illness, a drug and alcohol problem, intellectual disability, sensory disability, brain injury and/or medical illness. A person with multi-morbidity has more than two co-existing illness/disabilities. For some, having a medical condition may place them at risk of developing a mental illness; for others, dealing with a mental illness may place them at risk of injury or developing other problems.

The presence of medical co-morbidity such as diabetes, obesity, respiratory diseases and others, adversely affects quality of life and recovery from mental illness [57]. The negative symptoms associated with mental illness can create significant barriers to effectively managing these chronic co-morbid conditions.

Co-morbid conditions, such as concurrent substance abuse and/or eating disorders with mental illness, puts individuals at greater risk of morbidity and mortality [58]; with negative consequences for the persistence and severity of both disorders [59]. Frequently, worsening of one condition will exacerbate the other condition/s, especially when the individual is not treated in a holistic manner.

People who have a mental illness and another illness, be it another mental illness or a medical illness, experience significant difficulties. This may include difficulty accessing medical and mental health care as these systems of care are generally separated, which fragments the total care offered [16]. It has also been found that health professionals sometimes display an attitude of hopelessness, due to the difficulties associated with having two long-term relapsing conditions [60].

Mental illness may be exacerbated or worsened by a co-morbid condition, especially in relation to co-morbid substance-abuse disorder. Some people with co-morbidity may have difficulty adhering to medication/treatment regimes of the individual conditions. People with co-morbid drug or alcohol problems may find that drugs and/or alcohol interfere with the therapeutic effect of the medications used to treat the mental illness. People with co-morbid conditions are reported to have increased frequency and duration of hospitalisations [43], possibly due to the difficulties associated with managing the simultaneous demands of co-morbidities.

Services for people with co-morbid disorders are often limited. There may be differences in philosophies and treatment approaches of different services treating individual conditions. Sometimes the treatment approaches of each service may be conflicting in nature [43]. This lack of integrated treatment causes confusion for the individual experiencing co-morbid disorders. The breadth of conflicting advice ranges from treatment, management and medication and includes diet and exercise [43].

People with mental illness and co-morbid conditions may experience difficulties obtaining treatment. For example, services for people with mental illness may exclude those with co-morbid eating disorders, drugs and alcohol problems and self-harm issues. In addition, mental illness may be an exclusion criterion for treatment in eating disorder units and drug and alcohol rehabilitation services.

Co-morbid mental health conditions are often treated as separate problems, despite the fact that the conditions are co-existing within the individual and each condition impacts on the other, and on the individual as a whole. For example eating disorders and mental illness are often not treated nor managed together, and in fact one condition may be regarded as an exclusion criterion for treatment of the other condition. The outcome of this is that very unwell individuals are unable to access appropriate health care for either condition.

Despite a growing body of evidence that integrated care is important in treating individuals with addiction and co-morbid psychiatric disorders, such care remains in short supply [61]. For those with mental health and co-morbid drug and alcohol problems, research indicates that when these services are integrated the detection, assessment and management of this co-morbidity are improved [60]. These 'integrated services' involve extensive collaboration between mental health and drug and alcohol workers in the provision of a range of treatment, rehabilitation and education services. These integrated services require the mental health workers to be educated and trained in drug and alcohol issues, and drug and alcohol workers to be educated and trained in mental health issues [62].

There is a need for a holistic approach that integrates the care and treatment for individuals with co- and multi-morbidity. Having a combination of psychiatric symptoms results in greater psychological suffering, with the impact being greater than adding the impact of each condition [63]. Clients with multiple psychiatric disorders are a distinctive group whose specific needs are poorly understood and addressed.

In order to provide optimal holistic care attempts need to be made to co-ordinate and integrate the existing systems that provide care. Proper treatment of physical and mental conditions at the same time improves the overall wellbeing of the consumer [16].

Lifestyle Factors

Lifestyle factors such as poor nutrition, smoking, alcohol and drug use, obesity, physical inactivity and other life style factors can impact on the development and progression of physical illness; can worsen mental illness and reduce one's general well being.

Nutrition

Nutrition has a profound impact on one's mental and physical health [4]. Good nutrition is important to minimise the risk of CVD, diabetes and other lifestyle diseases. It is also important for brain function. Generally people with SMI have been found to have poorer nutrition than the general population. It has been reported that people with schizophrenia typically consume a diet higher in fat and lower in fibre than the general population, along with a decreased intake of fruit and vegetables [64-66].

It has been found that some people with mental illness may lack daily living skills such as shopping and cooking skills [67]. The lack of these skills contribute to individuals choosing easily obtainable fast food, often resulting in poor dietary intake with generally increased fat and sugar, and decreased fibre. Lifestyle intervention programs that target these deficits and include education on healthy dietary modifications and increased physical activity have been found to be effective in weight loss and the prevention of diabetes. Lifestyle intervention programs have been found to be more effective than medication alone [68].

Polydipsia

Polydipsia (the consumption of a large volume of fluid) is frequent but under-diagnosed in patients with mental illness [69]. One study reported that at least 20% of patients with SMI [70] had polydipsia. Water intoxication causes electrolyte disturbances, in particular hyponatremia, and physical complications.

Polydipsia is associated with poor prognosis [70], neurological symptoms, irreversible brain damage [71], coma and death [72]. Chronic water intoxication can also cause physical complications such as osteoporosis, cardiac failure, hypertension and malnutrition [69].

Smoking

Nicotine dependence adversely affects one's quality and length of life [73]. Smoking is a major risk factor for certain physical illnesses, and may contribute to the higher death rate in people with mental illness from heart disease, respiratory disease, cancer and a number of other conditions. Twice as many people with a diagnosable mental illness smoke compared to those without a mental illness [16]. The rate of smoking in those with SMI is reported to between 58% and 68%, compared to 18-20% in the general population. It is reported that 90% of individuals with schizophrenia smoke [75]. People with mental illness tend to smoke more cigarettes per day. In particular, it has been found that smokers with schizophrenia and other types of serious mental illness smoke significantly more heavily than smokers within the general population [23].

Despite the adverse effects smoking has on an individual's physical health, people with mental illness are less likely to be encouraged and supported to quit [16]. They are reported to have limited access to tobacco cessation treatment, and this represents a barrier to quitting smoking [73]. In hospitals smoking may be supported as a means to assist in the management of the patient's behaviour. Many with mental illness may use smoking as a form of self medication or as a coping strategy.

The cost of cigarettes to this generally low-income population is a major financial burden and often excludes the purchase of other necessities [16]. For example a study has found that mentally ill smokers elevated the importance of cigarettes, often choosing them over food, security of accommodation and safe interaction with others. Few of these smokers altered their smoking behaviour when the price of cigarettes increased, although most expressed a desire to quit [76].

Many people with mental illness are motivated to attend smoking reduction and cessation groups. When supported programmes providing nicotine replacement and counselling are offered to people with mental illness, it has been found that they are able to quit smoking at equivalent rates to the general population [16]. Programs, such as the South Australian Tobacco and Mental Illness Project that are specifically tailored to the needs of people with mental illness help participants quit or reduce their tobacco use [77]. This program was run by mental health and peer workers and included education on mental health, dealing with boredom and stress, building confidence and coping strategies, as well as nicotine replacement therapy and telephone counselling as added support. Integrating smoking cessation treatment within mental health care improves smoking quit rates [73, 77]. Integrated care is desirable, as psychiatric symptoms may be exacerbated and severe withdrawal symptoms experienced by smokers with a mental illness undertaking smoking cessation treatment. When smoking cessation and psychiatric care is integrated these adverse effects appear to be reduced [73].

Substance abuse

Drug addiction is a complex phenomenon characterised by compulsive and uncontrollable cravings and seeking behaviours that sometimes have devastating consequences [75]. Substance use disorders have significant impact on morbidity and mortality [78, 79], and have been identified as the most frequent co-occurring disorder among people with mental illness. Primary mental disorders are regarded as risk factors for the later onset of nicotine, alcohol and illicit drug use, abuse, and dependence with abuse. Mental disorders often precede substance use disorder, are associated with increased probability of their initial onset, and permit the population to be divided into high and low risk groups [59].

The high frequency of co-morbid substance abuse and mental illness may be related to common genetic or environmental conditions that lead to both illnesses. Common brain circuitry is involved in the development of both addiction and other mental illness [61, 75].

It has been estimated that approximately half of all people with serious mental illness have substance use disorder. Longitudinal investigations has found that having certain mental disorders, such as mood disorders, anxiety disorders and behavioural disorders may predict the later onset of smoking/nicotine dependence, alcohol abuse or dependence and drug abuse or dependence. The transition from illicit drug use to abuse was also predicted by the same disorders, with an additional significant association observed for bipolar disorder [59].

While substance abuse disorders often occur in individuals with mental illness, few individuals receive treatment for their conditions despite the serious health and other consequences that result [61]. Many individuals with co-morbid mental illness and substance abuse disorders end up in the criminal justice system. An estimated 75% of the inmates in prison are reported to have such co-morbidities [75].

Individuals with co-morbid addiction and mental illness tend to have poorer outcomes than those with only one mental illness. Concurrent treatment of both conditions is crucial [61].

Exercise

Physical activity levels for people with mental illness have been shown to be significantly lower than the general population [1]. The impact of the negative symptoms of the illness and the sedation associated with medication side effects may contribute to this lower level of activity. Research has shown that people with mental illness have lower levels of physical fitness than expected, due to physical inactivity [16]. The lack of physical activity contributes to obesity and increases the risk for cardiovascular disease [80]

Exercise provides benefits on many levels, including improved energy levels, better quality sleep and improved physical health. Regular physical activity has a positive effect upon many physiological variables associated with health and wellness e.g. heart rate and blood pressure [81]. Exercise helps to reduce heart disease, build healthy bones and muscles and manage weight.

Moderate-intensity exercise can prevent type 2 diabetes, with diet and exercise reducing the incidence of diabetes by 58% over 3 years [68]. In people with type 2 diabetes, moderate-intensity exercise improves carbohydrate metabolism, insulin sensitivity and glycaemic control [82]

Exercise has benefits for improvement of mood states [81, 83]. Exercise provides an outlet for relieving depression, anger, stress and anxiety; and helps to boost self esteem and self confidence. The body's natural release of endorphins, which occurs with exercise, assists to improve mood [4]. Physical fitness increases one's sense of psychological well-being [81] and is associated with positive mood by increasing feelings of vigour, reducing tension and fatigue [83].

Social Well Being

The consequences of mental illness often extend beyond the direct symptoms of the illness to affect the person's social and economic well-being and all aspects of life [16]. Studies show that without a strong support system, many will not manage their illness effectively, leading to poorer outcomes and increased hospitalisations [4].

People with mental illness remain one of the most marginalised groups in society; they are often isolated from family and friends [16]; they may experience family instability, poverty, unemployment, stigma and exclusion [84]. These problems often lead to lower living standards, which in turn can result in high rates of death and earlier death [16].

It has been found that people with mental illness are more likely to have never married, to live alone, to be unemployed and to have not completed secondary school [16]. This can lead to isolation, poverty, loss of freedom, poor social support, loss of dreams and goals [85]. Unemployment, in particular can impact on the ability of the individual to structure his/her day. When combined with the negative symptoms of the mental illness, this can contribute to a reduced motivation/ability to lead a healthy lifestyle. Negative social experiences further impact on psychological and mental well-being, and may lead to poor lifestyle choices, such as experimenting with drugs and alcohol to numb the emotional pain. These behaviours have consequences to physical health.

Unemployment has multiple impacts on an individual, which extend beyond financial burden. Employment provides an independent income and a sense of identity. It fills an empty day with purpose and activity. Unpaid voluntary work may also serve this purpose [86]. People with mental illness who are unable to maintain employment or study roles lose common life roles that for many people provide self esteem, meaning and social connectedness. Isolation can lead to loss of skills and confidence to engage socially with others. Social networks are further reduced by experiences of stigma and discrimination in society. Poor family relations experienced by many people with a mental illness further contribute to the isolation. It is reported that 84% of those with mental illness are separated, divorced, widowed or single; 85% are reliant on welfare benefits; 72% do not have a regular occupation; and 45% live in hostels, supported housing or crisis shelters, or are homeless [86].

Lifestyle issues, behaviour change and health promotion

Lifestyle issues including excessive alcohol consumption and other drug use, poor diet, physical inactivity and high risk behaviour contribute to an increase in the number of people with mental health problems developing a range of lifestyle diseases and premature death. Linde-Feucht (2007) identified that a person's behaviour contributes to 40% of premature death in mentally ill people, and that small changes in behaviour can significantly increase a person's longevity [87].

Negative symptoms of the mental illness may impair a person's motivation and ability to adhere to healthy lifestyle guidelines and other treatment and medication regimes. Therefore effective interventions need to be designed to assist in educating, motivating and empowering individuals with mental illness to adopt and maintain healthier lifestyles. Interventions should be designed to improve one's self efficacy, to support the individual to improve his/her skills set, and to engage the individual in a collaborative process of behaviour change and self management.

A Canadian study has used the transtheoretical model (Stages of Change) [88, 89] to determine whether patients with a psychotic disorder were ready and willing to engage in healthy lifestyle behaviour change [90]. This study found that the number of patients identified as ready for change was higher than expected (68% for eating habits and 54% for physical activity).

Conclusion

The evidence for the poor physical health and life expectancy of those who experience mental illness is widely reported. There is clearly a need for specifically targeted programs that aim to 'close the gap' in physical health, particularly in those areas, including heart disease, diabetes, obesity and tobacco use where prevention strategies for the general population are a national priority.

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