Clinical overview

Promoting physical health for people with schizophrenia by reducing disparities in medical and dental care


Objective: Acquiring a diagnosis of schizophrenia reduces life expectancy for many reasons including poverty, difficulties in communication, side-effects of medication and access to care. This mortality gap is driven by natural deaths; cardiovascular disease is a major cause, but outcomes for people with severe mental illness are worse for many physical health conditions, including cancer, fractures and complications of surgery. We set out to examine the literature on disparities in medical and dental care experienced by people with schizophrenia and suggest possible approaches to improving health.

Method: This narrative review used a targeted literature search to identify the literature on physical health disparities in schizophrenia.

Results: There is evidence of inequitable access to and/or uptake of physical and dental health care by those with schizophrenia.

Conclusion: The goal was to reduce the mortality gap through equity of access to all levels of health care, including acute care, long-term condition management, preventative medicine and health promotion. We suggest solutions to promote health, wellbeing and longevity in this population, prioritising identification of and intervention for risk factors for premature morbidity and mortality. Shared approaches are vital, while joint education of clinicians will help break down the artificial mind–body divide.

Clinical recommendations

• Schizophrenia is associated with increased mortality and morbidity rates, with most of the excess mortality due to common physical health conditions.
• Systematic physical health monitoring is necessary to ensure prevention of and early intervention for physical comorbidities, incorporating lifestyle and pharmacological interventions where indicated, with healthcare providers committing to equitable access to all levels of physical health care for people with schizophrenia.
• The burgeoning body of literature, the introduction of shared guidelines and the enhanced opportunities for integrated education provide a basis for re-integration of physical and mental health services. This will be of vital importance in addressing the mortality gap between expected and observed mortality in people with schizophrenia.
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Additional comments

- The assessment and management of physical health conditions in people with schizophrenia falls below agreed standards and is not equitable to that received by their peers without severe mental illness.
- The reasons for this are complex and include patient and systemic factors.
- Although antipsychotics increase weight and cardiometabolic risk, not taking antipsychotics if one has schizophrenia widens the mortality gap further. Therefore, antipsychotics, used thoughtfully to effectively treat mental health, ‘keeping the body in mind’, form part of mortality reduction strategies.

Introduction

Schizophrenia and related disorders are associated with increased medical morbidity and mortality (1, 2). The additional deaths were historically attributed to suicide and accidents, but these, in actuality, account for only a small part of the excess mortality. Most of the excess comes from comorbid physical illness. There is now a significant body of research highlighting the high rates of physical comorbidities in severe mental illness (SMI) and exploring the complex aetiology.

The World Health Organisation (WHO) definition of a ‘healthy life’ encompasses physical, mental and social health, and the WHO World Mental Health Day in 2014 prioritised ‘living a healthy life with schizophrenia’ (3). It acknowledged the impact of the slogan ‘no health without mental health’ but suggested that this now needs to be extended to ‘no mental health without physical health as well’ with a particular focus on improving services for physical health in people with schizophrenia. The WHO Comprehensive Mental Health Action Plan, adopted in 2013 by the World Health Assembly, advises its member states on the development of policy to improve the physical and mental health of people with SMI with a particular focus on improving access to good quality physical healthcare services for this group (4).

Aims of the study

This article aimed to detail the health inequities experienced by those with psychosis. We suggest solutions to improve health and wellbeing in this vulnerable population, including identifying and treating risk factors for medical illness and shared approaches to the management of acute and chronic medical conditions in schizophrenia.

Material and methods

As part of a series of articles on the promotion of physical health in schizophrenia, we have conducted a targeted literature review of published, English language, key review papers in this area, and it was undertaken using PubMed, Medline and Google Scholar on the subject of disparities in medical and dental care in people with schizophrenia. Search terms used were inclusive of but not limited to schizophrenia, psychosis, first-episode psychosis, SMI and physical health, cardiovascular disease, metabolic syndrome, diabetes, cancer, screening. Search results were expanded by examining the bibliographies of relevant articles. The search results were expanded by examining the bibliographies of relevant articles.

Results

The mortality gap

The mortality gap between expected and observed mortality in people with SMI has been described as the ‘stolen years’ (5). This mortality gap can be up to 15 years for men and 13 years for women (6) with men twice and women three times more likely to die from cardiovascular diseases such as myocardial infarction and stroke than the general population. A systematic review in 2007 looking at 37 studies found significantly raised standardised mortality ratios (SMRs) where people with schizophrenia had a 2.5 times increased risk of dying compared to the general population from all causes of death (7).

A more recent review published in 2015 has identified 203 studies looking at mortality in mental disorders (representing 29 countries) showing the increase in attention that this topic has received in recent years. They found that people with psychosis have a mortality rate that is 2.54 times higher than the general population. They estimate a population-attributable fraction due to mental disorders of 14.3% and that based on this, 8 million deaths around the world per year are attributable to mental disorder (8). In low-income countries, mortality rates are up to three times greater for people with schizophrenia (9). Elevated
rates of medical problems in schizophrenia contribute more to the shorter life expectancy than external causes such as accident, suicide or homicide (10).

The risk of early death in schizophrenia is amplified by functional impairment which predicts increased mortality in psychosis particularly in younger patients (11). Likewise, Hayes et al. (12) identified comorbidity where even individuals with a subclinical physical illness or disability (not requiring any action) have a two-fold increased adjusted mortality risk compared to the general population.

Cardiovascular disease accounts for a significant proportion of the excess mortality (13); antipsychotic medication accelerates the emergence of cardiometabolic risk factors (14) although the interaction with mortality is complex and discussed in more detail below. Nevertheless, obesity is a significant independent predictor of cardiovascular risk (15) and is prevalent in schizophrenia where one in two patients is overweight (14). Likewise, there are extremely high rates of diabetes, glucose dysregulation and dyslipidaemias in schizophrenia with, globally, one in three people with schizophrenia meeting the criteria for metabolic syndrome (14).

Health problems in schizophrenia are not however limited to the heart; Leucht et al. (16) showed that people with schizophrenia also have higher risks of chronic obstructive lung disease, infectious diseases such as HIV, tuberculosis and hepatitis C, osteoporosis, poorer oral health and more sexual dysfunction than the general population. In Ethiopia, infectious disease is the commonest cause of death (49.6%) for those with SMI (9).

There have been reports of higher pain thresholds in schizophrenia (17), although this is not to say that people with schizophrenia do not experience pain. A recent meta-analysis has shown that pain is as prevalent in schizophrenia as in the general population (18), with up to 40% reporting pain when asked (19).

Other, sometimes overlooked, physical health problems include constipation and nocturnal enuresis. Constipation is common and related to physical inactivity, poor diet as well as the anticholinergic effects of antipsychotics (20). It is particularly a concern for people on clozapine where there have been case reports of fatal bowel obstruction (21). Nocturnal enuresis has been linked to many different antipsychotics and is under-recognised by clinicians; this can be distressing and socially isolating and so is important to actively manage (22).

**Reasons for excess mortality and morbidity**

To prevent the problem, we need to look at its origins. What are the reasons for this significant difference in morbidity and mortality in SMI? These can be divided into factors related to the patient and the illness, effects of medication and access to care.

**Individual factors**

Psychosis is more prevalent in urban settings (23) where health inequalities are prominent (24). At the individual level, health behaviours in schizophrenia are often compromised. For instance, social withdrawal may reduce opportunities to participate in physical activity resulting in a more sedentary lifestyle (25). Negative and cognitive symptoms make it even more difficult for people with schizophrenia to prepare healthy meals, and it may be much easier to pop in to the nearby takeaway. Sedentary behaviour and unhealthy eating increase vulnerability to ill health and early death (26). People with schizophrenia are much more likely to smoke cigarettes with a reported 67% lifetime smoking rate (compared to 39% in the general population) (27). This difference continues to widen with the current smoking rates in the USA now at a low of around 17.9% in 2013, down from 20.9% in 2005 (28), but there has been little change in the rates of smoking in people with psychosis. Unemployment and alcohol misuse are also common and are related to risk of cardiovascular disease (29). Importantly, the downward socio-economic drift often associated with schizophrenia is in itself likely to increase the risk of ill health (30).

At a biological level, genetic factors may also influence cardiometabolic risk. Andreassen et al. (31) have identified 10 loci associated with both increased cardiovascular disease risk factors (mainly triglycerides and low- and high-density lipoproteins but also systolic blood pressure and body mass index) and schizophrenia. Polymorphisms in genes may increase susceptibility to both schizophrenia and diabetes (32). Inflammatory mechanisms have been suggested as a possible explanation for how cardiovascular disease risk factors exert some of their effect in schizophrenia (33).

**Antipsychotic medication**

High rates of cardiovascular and metabolic disease prompted greater concern about adverse impact of antipsychotic medicines on cardiovascular risk in
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recent decades. Claims of increased efficacy and reduced side-effect liability have encouraged widespread use of the so-called second generation or atypical antipsychotic medications over the past 20 years. However, benefits over older first-generation compounds have not been substantiated (34, 35) leading to some commentators questioning industry claims of class differences in effectiveness (36). While neurological side-effects may be less prominent with newer antipsychotics, concerns have now shifted to adverse effects on weight, glucose metabolism and lipid profile (37).

Comencing antipsychotics de novo is associated with weight gain irrespective of the drug chosen (38), unless actions such as health promotion programmes (HPPs) (39, 40) are taken to prevent this. There has been a successful report of such an integrated programme in Australia (41). However, other work has suggested that once the intervention stops, the cardiometabolic risk profiles revert to their original trajectory (42). There is some evidence that antipsychotic medication causes dysregulation of adipose tissue homoeostasis (43), although there have been smaller studies showing increased abdominal adipose tissue in people with schizophrenia with no difference between those who were on medication or drug naive (44).

While weight gain and central obesity may partly explain glucose and lipid disturbance, these effects can also develop in the absence of weight gain and quite quickly (45). This makes it important to also be clinically alert to serious metabolic disturbance occurring in those on antipsychotic medication – even those who have not gained weight (45, 46). Moreover, this group may have additional risks for glucose disturbance anyway, and drug-naive patients with schizophrenia have a 1.27–1.63 times increased prevalence of diabetes mellitus compared to the general population (47), although meta-analysis in 2013 found only modest increases in hyperglycaemia and metabolic syndrome in unmedicated first-episode patients (but high smoking rates) (48).

It is now clear that any antipsychotic drug, clozapine and olanzapine in particular, can worsen cardiovascular risk profile. Furthermore, these disturbances can develop quickly in those who receive antipsychotics for the first time (38, 49, 50), highlighted by the recent RAISE study which observed significant cardiometabolic abnormalities (dyslipidaemia, prediabetes, prehypertension) in first-episode psychosis patients with mean lifetime exposure to antipsychotic treatment of only 47 days (49). The progressive acquisition of cardiometabolic risk is demonstrated by Mitchell et al. (48) who reported a 10% rate of metabolic syndrome in unmedicated and first-episode schizophrenia compared to 32.5% rate in established schizophrenia (14).

Sudden death is also more common in schizophrenia. Both typical and atypical antipsychotic medications have been associated with a significant increase in the risk of sudden cardiac death assumed to be due to arrhythmias (51). Antipsychotic medication can also cause dose-related QT prolongation with a variance between drugs. QT prolongation is known to be associated with an increased risk of sudden cardiac death (52).

Nevertheless, the message is not that medication is all bad. People manage their lives, including their physical health care, better when mentally at their best. In one of the largest studies looking at mortality in 66,881 patients with schizophrenia over a 10-year period, long-term treatment with antipsychotic medication was associated with lower mortality than in those on no antipsychotic medication (53) – in fact, the longer people were prescribed antipsychotics, the smaller the mortality gap became. There was no increased risk of mortality from ischaemic heart disease in patients with 7- to 11-year cumulative exposure to antipsychotic medication and indeed, in this study and in a more recent linkage study from London, people prescribed clozapine, the gold-standard treatment for refractory schizophrenia, had the lowest mortality of all those with schizophrenia (54). Therefore, antipsychotics, used thoughtfully to effectively treat mental health, ‘keeping the body in mind’, could be seen as part of mortality reduction strategies.

Quality of health care provided

Although SMRs in schizophrenia have increased in a linear fashion over the last 30 years (7), mortality rates in the general population have declined over this time, which suggests that people with schizophrenia are not benefiting from improving overall health care and health outcomes. A systematic review by Mitchell et al. (55) found disparities suggesting inferior quality of care for patients with psychiatric diagnoses in 70% of studies looked at.

Clinicians sometimes mistakenly assume that people with schizophrenia are less likely to seek help for physical health issues or attend physical health check-ups. However, a review by Mitchell et al. in 2009 (55) found instead more frequent contact with healthcare providers in those with SMI, suggesting that the care provided may not be sufficiently focussed on physical health.

Monitoring of physical health. A National Audit of Schizophrenia recently examined the quality of
care provided to over 5000 people with a diagnosis of schizophrenia or schizoaffective disorder attending community mental health services in England and Wales, using a 12-month retrospective review of patient case records and also a cross-sectional patient survey. The case record review looked at whether nine parameters of physical health (weight, BMI, blood pressure, tobacco use, alcohol use, substance misuse, blood glucose, blood lipids and family history of cardiovascular disease, diabetes, hypertension or dyslipidaemia) were documented. The patient survey asked whether the person thought they had received a physical health check-up in the last year. The results showed that documented evidence fell below agreed standards with <25% of patients having all nine parameters documented. Where cardiovascular risk factors were documented, the patient was frequently not offered treatment for this, in particular for patients with evidence of dyslipidaemia and hypertension (56).

Acute medicine. In acute medicine, people with psychiatric diagnoses have a significantly lower chance of receiving cardiac catheterisation than the general population. For example, patients referred from an in-patient mental health unit were a third less likely to receive cardiac catheterisation than the general population (57). Druss et al. (58) have shown that people with schizophrenia are the group least likely to undergo cardiac catheterisation compared to those without a mental disorder.

A Danish study has shown that in the longer term management of cardiovascular disease, people with schizophrenia are prescribed lower rates of most cardiovascular drug classes compared to the general population, in particular lipid lowering and antihypertensive medication (59). Patients with SMI were less frequently prescribed more potent medications (such as ACE inhibitors or beta-blockers) suggesting inadequate treatment of cardiovascular disease. Data from the CATIE schizophrenia study in the USA suggest that non-white women with schizophrenia may be particularly at risk for under treatment of hyperlipidaemia and diabetes (60).

Disparities in diabetic care resulting in fewer routine eye checks and poorer glycaemic and lipid control (61) help explain why people experiencing both diabetes and SMI can expect 50% poorer survival than those experiencing diabetes alone (62).

People with schizophrenia also have worse outcomes in oncology compared to the general population. While rates of most cancers in 200000 people with schizophrenia over 9 years in Taiwan were 29% less than those in the general population, mortality from cancer was 1.36 times higher (63). Some authors have found that people with schizophrenia present with cancer later, with more metastases (32). However, a recent linkage study found no difference in staging at presentation but poorer survival, suggesting the main problem lies with treatment postdiagnosis (64). Indeed, people with schizophrenia who develop cancer are less likely to receive a surgical intervention or radiotherapy and receive fewer sessions of chemotherapy (65).

Surgery. From a surgical point of view, having a diagnosis of schizophrenia is linked to poorer outcomes. In a review of appendectomies in people with schizophrenia, Cooke et al. (66) found that patients with schizophrenia did in fact report typical signs and symptoms in a what appeared to be a timely manner (mean of 2 days before the onset of symptoms to presentation), but the surgical intervention showed that they were in fact presenting late in the natural course of the illness (80% with advanced appendicitis, perforated or gangrenous at the time of surgery). Morbidity and mortality rates were much higher than in the control group.

A recent meta-analysis has also confirmed that schizophrenia is associated with an increased rate of fractures (67) and patients have higher crude mortality rates following a major fracture (68). SMI is also associated with higher odds of in-hospital postoperative complications following total hip or knee arthroplasty with the rate of adverse events being most highly associated with a diagnosis of schizophrenia (69).

Preventative medical care. Disparities in preventive care for people with SMI have been documented in a comparative analysis by Lord et al. (70). They found low rates of osteoporosis screening, blood pressure monitoring, vaccinations, mammography and cholesterol monitoring. A recent systematic review by Mitchell et al. (71) showed that women with mental illness were significantly less likely to receive mammography screening compared with members of the general population. In women with SMI, there was almost 50% lower odds of receiving mammography when indicated.

Sexual health. Sexual dysfunction, affecting all domains of sexual function (72), is common in people with schizophrenia with reported prevalence of up to 80% (73). It is often attributed to the side-effects of psychotropic medication but has also been reported prior to the first episode of psychosis in people not treated with antipsychotic
accessing dental care for those with SMI (80). The development of sexual side-effects contributes to non-adherence to psychotropic medication. More at-risk sexual behaviour has also been reported in people with schizophrenia (75). Despite this, it is an often overlooked aspect of general wellbeing and quality of life in people with schizophrenia.

**Dental health.** Oral health has been defined as a ‘standard of health of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to general wellbeing’ (76). Oral health can be very poor in people with SMI, impacting negatively not only on physical health with, for example, potential greater risk of cardiovascular disease (77), but also on quality of life, social functioning and self-esteem. A review by Matevosyan (78) of 57 studies reported 61% lifetime prevalence of poor oral health including conditions such as dry mouth, missing teeth, grossly carious teeth and periodontal disease. A systematic review by Kisely et al. (79) found that people with SMI had 3.4 times the odds of having lost all their teeth compared to the general population, and significantly higher scores for decayed, missing and filled teeth. People with SMI tend to experience more dental problems and require more dental treatment when compared to the general population (80).

Oral hygiene has been implicated as a primary reason for these high rates of dental disease with the proportion of people with SMI who brush their teeth at least twice a day reported as significantly lower than the general population (81) and fewer patients with schizophrenia attending the dentist for check-ups (82). Higher rates of other risk factors such as smoking (83), xerostomia (as a side-effect of antipsychotic medication) (84), and poor diet with increased sugar intake, particularly from high sugar and carbonated drinks, are also present (85). The low personal perception of dental need and attitude of the dental team are often barriers to accessing dental care for those with SMI (80).

**Discussion**

Systematic physical health monitoring for people with psychotic illnesses should begin at initial attendance at any mental health service and on a regular basis going forward to ensure early identification and treatment of physical illness. Physical health monitoring should include monitoring of the side-effects of psychotropic medications, highlighting those at high risk of metabolic complications, but should not be limited to cardiometabolic risk alone. However, monitoring alone is not enough as the Lester UK Adaptation of the Australian Positive Cardiometabolic Health Resource (86) states: ‘Don’t just screen, intervene!’ Early intervention with HPPs for those at high risk of metabolic complications and treatment of any abnormalities found is vital if we are to address the increased mortality and morbidity in people with schizophrenia. The strength of evidence that behavioural interventions can achieve clinically significant reductions in obesity and cardiovascular risk led Bartels to recently comment that ‘the greatest current barrier to increasing the life expectancy of persons with serious mental illness is no longer a knowledge gap – it is an implementation gap’ (87).

The Equality Act 2010 places a legal responsibility on health services to make reasonable adjustments to ensure people with SMI are not disadvantaged compared to the general population in accessing health care (88). A practical solution is to ask – what support (if any) at this time does this person need to access health service equitably? It is important to work openly with patients and their carers with regard to this. A creative and flexible approach on all parts may be needed to achieve equity. It may be as simple as providing later appointments for someone who takes time to get organised in the morning or longer appointments for someone whose communication skills are impaired by their illness. But it may also mean providing more assertive, sometimes joint approaches to physical health care either as part of an ongoing care plan or temporarily when the patient is less well and unable to arrange their care effectively. This is where patients with SMI can fall into a funding gap, with stretched services disagreeing over whose job this is. It is literally vital for all parties to put the patient at the centre and work together in a flexible manner to overcome the identified impediments to accessing care.

The physical separation of physical and mental health services and even separation of medical records add to the challenges in providing physical health care for people with schizophrenia. There are few regions that have comprehensive shared systems of electronic patient notes; this leads to inefficient practice and possible duplication and/or gaps in investigations. Within secondary care, merging medical and psychiatric electronic patient records can lead to lower readmission rates and shorter lengths of stay for psychiatric patients (89). Shared IT systems also allow for data collection at a population level allowing for service-level research. Bridging the information gap between primary care and secondary mental health services is
also important. For example, it is difficult to interpret an isolated, abnormal laboratory finding without knowledge of other aspects of the medical history, previous laboratory findings and treatment history contained within the primary care records.

In-patients

For in-patients, the answer is relatively straightforward as the chain of responsibility is usually clear. The mental health team caring for the patient has the primary responsibility to investigate and arrange follow-up for any abnormalities identified. However, there are a number of challenges inherent in this.

During short, acute admissions, good communication with the primary care provider is essential to integrating care (90), preventing duplication of investigations and improving awareness of risk factors. Transitions in care, now more common with increasing bed pressures, put patients at risk of medication errors with medication discrepancy rates reported of approximately 69% (91) with lack of electronic integration being one of the main systemic factors implicated (92). Formal medication reconciliation procedures carried out with intensive pharmacy involvement have been shown to reduce these errors (93).

Pathways between mental health and general hospitals can be problematic: as well as the difficulty in accessing care urgently, it is often difficult to access prompt, non-urgent secondary care which in turn delays psychiatric treatment. Integrated healthcare teams and health records would make it easier to seek advice from medical specialties, for example allowing cardiology review of abnormal ECGs.

However, in the UK, in 2013 more than half of the 23,600 in-patients on mental health wards had been in hospital for 117 days or more (94). In long-stay units such as forensic units where admissions may be in the order of years, the routine monitoring and treatment of physical health issues may be problematic, and indeed, a correlation between length of stay and increased body mass index has been reported (95). Access to primary care services is complicated, but latterly, long-stay forensic services in the UK have introduced visiting general practitioners and/or advisors on physical health care (96).

Out-patients

In the community, there is debate over who should be responsible for monitoring physical health in patients with schizophrenia over the course of their illness. Mental health professionals may be the primary healthcare contact for a person with schizophrenia, but the level of physical health care provided in mental health services can be highly variable. Mental healthcare providers may not feel sufficiently familiar with current monitoring and treatment of physical health issues. Furthermore, many mental health services are now discharging patients to primary care as soon as possible, encouraging rapid re-access to secondary care when needed, making the primary care the hub of care. The late Professor Lester highlighted in the 2012 James McKenzie lecture a number of factors, some structural and some discriminatory, that may act as barriers for these patients to engage with their primary care practitioner (97). For instance, lack of motivation and poor concentration may hamper the arrangement and keeping of surgery appointments, as will sitting in a busy waiting area or seeing practitioners they are not familiar with. Short appointment times make it challenging to obtain an adequate history from someone experiencing thought disorder, poverty of thought, or who is sedated from antipsychotic medications. Professor Lester suggests a number of simple adaptations that could readily improve care such as flagging the notes of a person with SMI, offering longer appointments to a named clinician and following up on non-attendance (97).

Communication is key to integrating primary and secondary care in the community. People with schizophrenia should attend their primary care practitioner if they can, but what happens when they cannot? Should the primary care practitioner or district nurse do home visits or should it be a joint approach with the community mental health team? Some people have suggested physical health clinics within community mental health teams, but the advantage of this over primary care is unclear. Patients have very different needs which make uniformity of costs difficult to achieve, so it is important that this is approached flexibly by funders.

At present, psychiatry teams in the community sometimes provide a default service for people who do not attend their primary care practitioners at all or duplicate testing is taking place by both but not communicated between services. If this is the case, it is important that findings be linked in to primary care where possible. There is also a great need for stronger links between specific services such as diabetes teams and more general acute medical services to ‘in-reach’ into mental health services.

Lifestyle interventions

A recent meta-analysis of 17 studies (looking at 810 participants) showed that non-pharmacological
interventions (individual or group interventions, cognitive behavioural therapy and nutritional counselling) had a statistically and clinically significant, enduring impact on antipsychotic-induced weight gain compared to control conditions (98). They reported similar numbers needed to treat for non-pharmacological and pharmacological interventions.

National smoking cessation programmes are aimed at the general population but do not specifically address the needs of those with SMI. A review in 2010 showed that the pharmaceutical and behavioural treatments used in the general population were effective in reducing smoking in those with SMI (99).

A study looking at lifestyle interventions in south London showed disparity across different areas in the availability of HPPs inclusive of people with SMI (100). Certain HPPs were developed exclusively for those with SMI, while some had SMI as an exclusion criterion, which adds to stigmatisation and may act as a barrier to engagement. More widespread availability of lifestyle interventions that are easily accessible to those with SMI is important.

Guidelines

There are numerous international guidelines available for the monitoring of physical health in people with SMI, in particular for the monitoring of metabolic complications. In a review of the guidelines available, De Hert et al. (101) showed variation in the level of detail, timing of monitoring and proposed therapeutic interventions. Few guidelines make suggestions as to who should carry out the physical health monitoring. In the UK, the National Institute for Clinical Excellence (NICE) recommends annual monitoring of physical health for people with established psychosis (102). In the first year of a psychotic illness, they recommend more frequent monitoring which should be provided by mental health services with the responsibility subsequently transferred to primary care under shared care arrangements.

Shared guidelines are key, such as the American Diabetes Association/American Psychiatric Association consensus document published in 2004 in North America (103) and the position paper of the European Psychiatric Association, supported by the European Association for the Study of Diabetes and the European Society of Cardiology (37). The Lester UK Adaptation of the Positive Cardiometabolic Health Resource (86) was adapted for UK use from an original Australian resource and produced through collaboration between the Royal Colleges of General Practitioners and Psychiatrists and supported by the National Audit of Schizophrenia. This has been agreed by all of the medical and psychiatric Royal Colleges including the College of Nursing, patient and care advocate groups and the Department of Health and is now being shared with patients and carers so that they can use it to raise the topic of physical health monitoring for discussion with their clinician.

The challenge lies in the implementation of guidelines: studies of the effectiveness of the American Diabetes Association/American Psychiatric Association consensus document found minimal change in monitoring rates in people on antipsychotic medication (104). Failure of some clinicians to adhere to prescribing guidelines with implications for avoidable weight gain and metabolic disturbance represents a further implementation challenge. The National Audit of Schizophrenia found a wide variation in prescribing practice across the UK, notably for polypharmacy and prescribed doses in excess of recommended British National Formulary levels (105). These findings were echoed in the RAISE study (106) from the USA where antipsychotic prescribing for those with a first episode of psychosis was evaluated against the PORT recommendations (107).

Sexual health

Sexual side-effects need to be enquired about during patient consultation in both primary and secondary mental health services. The management of sexual dysfunction should not focus on pharmacology alone but should encompass psychosocial issues such as the development of relationships and psychoeducation. Sexual health should also be addressed as part of routine physical assessment.

Dental

The management of the high rates of poor oral health in patients with SMI starts with improving awareness of oral health issues among mental health providers (108) and then education for patients. Solutions may be as basic as providing toothbrushes and access to fluoridated toothpastes on in-patient units and supporting registration with a local dental provider on discharge. Access to appropriate and timely dental care is important to ensure oral health and function.
As people with SMI are classified as high risk for tooth decay and periodontal diseases because of xerostomia (84), it is recommended that they attend the dentist more frequently than the general population and are prescribed fluoride varnishes, high-fluoride toothpastes, and are supported to achieve good plaque control (109). Access to dental services needs to be facilitated, which requires communication between mental health teams and dental care providers with a focus on flexible approaches to appointment times and duration and the management of dental anxiety. As the risk factors for many general and oral health conditions are common, it makes sense that the clinical teams in contact with people with SMI make every clinical contact count and use the opportunity to raise awareness of oral health as part of general health. Health promotion focusing on smoking, alcohol use, diet and hygiene can be modified to incorporate appropriate messages relevant to dental health.

Several authors have suggested the integration of dental HPPs with psychiatric and physical care to improve awareness of oral disease among patients and the mental health team (79, 110). A small study in the USA showed that it was possible to improve oral health behaviours in people with SMI (111). The Three Shires Early Intervention Dental Trial is currently exploring potential benefits from an oral health awareness programme delivered by care coordinators in ten early interventions in psychosis services in the East Midlands of England (112). This is a welcome study in an area of health concern which has attracted little research to date.

Education

It is clear that major changes in how we educate future psychiatrists and physicians are needed. Psychiatry is often taught in a separate block away from the general hospital which only serves to increase the separation between physical and mental health as discussed above. The relationship between physical and mental health needs to be emphasised in both undergraduate and postgraduate training.

A recent British Medical Association paper (96) suggested that psychiatry trainees take up special interest sessions in primary care as part of their training to improve their confidence in the identification and management of physical health issues. We would further propose that trainees in medicine be encouraged to spend time in psychiatry as part of their training. This integration of mental and physical health is vital in looking to the future management of the increased morbidity and mortality in people with schizophrenia.

The World Psychiatric Association has prioritised raising awareness of physical health among mental health providers and general practitioners (113) and has presented education modules highlighting the prevalence of physical health problems in people with SMI (114, 115).

Joint training would also be desirable in other health professions. In some countries, such as the UK, mental health nurses have extremely limited exposure to physical health wards during their undergraduate training, and vice versa. Breaking this relatively new divide in nursing training would make a whole-body approach to patient care less of a challenge.

Integration of mental health and physical health services is imperative if we are to address the high mortality rates in people with schizophrenia and reduce this mortality gap. We also need to focus on quality of life and reducing physical health morbidity not forgetting that problems such as obesity, sexual dysfunction and poor oral health may also damage self-esteem and increase discrimination. It is clear that the assessment and management of physical health conditions in people with schizophrenia falls below agreed standards and is well below that received by people without SMI. The reasons for this are complex and not fully explained. But we do know that awareness of modifiable risk factors, effective and mindful treatment of psychosis and earlier detection of physical illness all play a role in reducing morbidity and mortality in this population. With increasing knowledge of this topic, the introduction of shared guidelines and enhanced opportunities for integrated under- and postgraduate education a ‘healthy life’ in people with schizophrenia encompassing physical, mental and social health is closer to a reality.

Declarations of interest

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