



## REVIEW ARTICLE

## Breast Cancer Prevention and Treatment in Women with Severe Mental Illness

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### Abstract

**Background:** Breast cancer is an important cause of death in women with severe mental illness. Patient factors, provider factors, and social factors contribute to increased incidence and delayed diagnosis as well as delayed and substandard treatment in this population.

**Method:** This narrative review is based on the Google Scholar database from 2009 to the present, using the following search terms in combination with "schizophrenia", "psychosis", or "severe mental illness": Breast cancer, screening, chemotherapy, radiation, mastectomy, oophorectomy, chemoprevention.

**Findings:** Patient and treatment factors contribute to increased incidence. Despite the increased risk, breast screening uptake is low in this population, as is preventive surgery and chemoprotection. There are indications of treatment delays and also of treatment that is less thorough than that provided to mentally healthier peers. As a consequence of these factors as well as the prevalence of co-morbidity and low social support in this population, breast cancer mortality rates are high. Barriers to screening have been identified as patient apathy, cognitive deficits, and lack of information about breast cancer risks and options, vulnerability to stress, practical issues, poor communication between patients and care providers, and perceived stigma.

**Conclusions:** Based on the findings of this review, cutting the incidence and improving the prognosis of breast cancer in this population is potentially feasible. Information about risk factors for breast cancer needs to be made available to patients and psychiatric care providers. This will help to inform decisions about lifestyle factors and mental health treatments. Monitoring for co-morbidities and enabling screening procedures is essential. A close collaboration between oncology and mental health will help to ensure high quality care for breast cancer in women with severe mental illness.

### Keywords

Breast cancer, Severe mental illness, Screening, Chemoprevention, Mortality

### Introduction

Not only do individuals with chronic and severe mental illness disproportionately suffer from serious medical problems, but the quality of medical treatment they receive is often below par, and mortality rate is high. This is well known, and many of the factors responsible for this situation are known. First among the responsible factors is poverty, the consequence of long-term, highly stigmatized disabilities whose almost inevitable sequelae are life-long unemployment and social exclusion. Poverty governs where people live, what they eat, who their friends are, what they do with their time and what they do to keep healthy [1]. Poverty determines attitudes towards health, exposures to health threats, risk behaviors, and the response of health providers. Poverty also governs ease of access to medical care.

The second most important factor to influence the quality of health care among the severely mentally ill is the stigma that attaches to mental illness [2]. Stigma leads to social exclusion, depriving the mentally ill of sources of health information and negatively biasing the responsiveness of healthcare professionals.

The relatively small size of social networks and diminished family support of individuals with serious mental illness [3] means that they receive little advice or guidance about health matters from people they can trust [4]. Additional health vulnerabilities associated with severe psychotic illnesses are immune deficiencies that increase susceptibility to infection [5], a predisposition to diabetes mellitus [6], high rates of alcohol abuse [7], smoking [8] and accidental injury [9], compounding the risk for early mortality. People with severe mental ill-

ness are also exposed over the years to undue violence and abuse [10]; they suffer from cognitive deficits that make it difficult to accurately interpret the significance of medical symptoms [11], they often lack the motivation to seek medical care, and they are often fearful and suspicious of medical intervention [12]. Moreover, psychopharmaceuticals used to treat severe mental illness can themselves promote obesity and induce metabolic problems and cardiovascular disease that increases the mortality rate [13].

Overall mortality rates are very high in this population [14,15]. Ischemic heart disease and suicide are the most common causes of death, impacting men more than women. The next most common cause of death in persons with Severe Mental Illness (SMI) is cancer, which is more prevalent among women than men. Cancer prevalence rates in women with schizophrenia have been reported to be 491 per 10,000 while, in men with schizophrenia, they are estimated to be 226 per 10,000 [16,17]. The low cancer rates in men with schizophrenia may reflect under-diagnosis. The relatively high rate in women has been, for the most part, attributed to breast cancer [18].

In the general population, death from breast cancer has been reduced through regular screening and, consequently, early case finding. This may not, however, apply to the SMI population. In 2002, Druss, et al. [19] began to question the quality of preventive healthcare provided to individuals diagnosed with mental illness. A 2009 review of 27 studies in this area found that the level of screening services received by patients with mental illness was demonstrably lower than that of their peers [20]. For this reason, I undertook a review of the recent literature on uptake of screening for breast cancer among women with schizophrenia and related disorders, and on cancer outcomes following diagnosis.

## Method

I searched the Google Scholar database (which includes Medline and Embase) from 2009, the date of the Mitchell, et al. article [20] onward with the following search terms: "breast cancer, screening, chemotherapy, radiation, mastectomy, oophorectomy, chemoprevention" in association with "schizophrenia" or "psychosis" or "severe mental illness". What follows is a narrative review of the findings.

### Breast cancer risk

There is no general agreement in the literature about whether or not women with schizophrenia are at higher than average inherent risk for breast cancer, although there are many reasons to believe that this could be the case. An important additional risk factor is the psychopharmacologic treatment of psychosis. The long-term administration of antipsychotic drugs raises prolactin levels and induces obesity, two potential in-

ducers of breast cancer [21]. In addition, other potent risk factors for breast cancer are more prevalent in the schizophrenia population than outside it: insulin resistance, dyslipidemia, smoking, alcohol abuse, reduced physical activity, low parity, and generally low levels of breastfeeding [22,23].

### Breast cancer screening uptake

Despite the possibly increased risk, there is less than average uptake of breast screening among women with severe mental illness. This is true whether screening is done by regular manual physical examination or by mammography [24-27]. On average, approximately 25% of women in psychiatric care receive standard breast cancer screening. The greater the severity of mental illness, the greater the barriers to screening [28].

### Barriers to screening

The main barriers to cancer screening in the schizophrenia population have been identified as:

a) The apathy and lack of motivation characteristic of schizophrenia patients acts as an obstacle to doctor visits and other health initiatives [29].

b) Lack of knowledge about locally available screening programs by both service users and mental health providers impedes effective screening. Many patients harbor wrong beliefs and unresolved concerns about cancer screening and many mental health providers are not familiar enough with available services to assist their clients [30].

c) Practical obstacles are lack of insurance, lack of a regular primary care physician, transportation problems, unduly long wait periods for appointments, lack of annual reminders. This population changes address frequently and may experience periods of homelessness that undermine regular screening [31].

d) Some patients with SMI struggle with cognitive challenges that make it difficult to appreciate health risks and to plan ahead effectively [32].

e) Many patients are dissuaded by past experience of painful screening procedures [33,34].

f) Sometimes the lack of follow-through can be attributed to poor communication and lack of optimal collaboration between service user and health provider. Providers may attribute medical complaints to the patient's psychotic thinking and may, therefore, be less likely than they would otherwise be to refer patients to specialized treatment. This is referred to as "diagnostic overshadowing" [35]. Concern regarding the potential dangerousness of individuals with schizophrenia may also negatively influence medical care in that physicians and other health personnel hold unconscious biases against patients so diagnosed and prefer to avoid them [30,36,37].

## Genetic screening and counseling

The risk for certain forms of breast cancer depends on the presence of predisposing genes, notably BRCA1 and BRCA2. Screening for these genes constitutes an initial assessment of risk, especially in women with a family history of breast cancer [38,39]. One would expect women with severe mental illness to be less willing than other women to subject themselves to a genetic screen because awareness of genetic risk is generally reported as low in this population [40]. Interestingly, a study on willingness to attend genetic counseling found no difference between women with and without mental illness [41]. Both groups of women were willing to attend counseling sessions to the same degree.

## Preventive surgery

In women with a BRCA1/2 mutation, risk-reducing surgeries, such as bilateral mastectomy and premenopausal bilateral salpingo-oophorectomy, are associated with a significantly reduced breast cancer risk of up to 80% and 50%, respectively [42]. Some women with a positive BRCA1/2 test, therefore, decide to undergo voluntary surgery to remove their breasts and ovaries. Health professionals leave these decisions to the woman and her family, although decision-making tools to help with complex decision-making have been developed [43]. It is important to note, however, that should a woman with schizophrenia decide to have her breasts removed, her doctors would in all probability question her judgment. They would worry that decisions by a woman with schizophrenia were made on the basis of delusions rather than on logic. Not taking a person's statement at face value because of their medical diagnosis, as Sanati and Kyratsous have argued [44] is a form of testimonial injustice [45], an example of the many discriminatory practices faced by individuals with severe mental illness.

## Chemoprevention

An alternative to breast and ovary removal is a 5-year use of oral risk-reducing medications, such as Selective Estrogen Receptor Modulators (SERMs) or aromatase inhibitors [40]. The administration of SERMs reduces overall breast cancer incidence by 38%. Breast tumors that are estrogen receptor positive respond best, by approximately 51% and the preventive effect is calculated to last for 20 years after stopping. Aromatase inhibitors, which have a different side-effect profile than SERMs [46], are also effective, but less so than SERMs in premenopausal women [42,47]. The uptake of SERMs and aromatase inhibitors has been generally low because of the potential for significant side effects, which can include stroke, pulmonary embolism, deep vein thrombosis, and endometrial cancer. A second often mentioned reason for low uptake is the lack of communication with clinicians - failure to have questions fully answered, not knowing how long one needs to follow the regi-

men, concerns about being randomized to ineffective prevention in clinical trials [48]. Uptake in women with severe mental illness has not been studied because these women have been excluded from clinical trials of chemoprevention in breast cancer, another example of prejudicial treatment [49]. Patients with SMI are often excluded from clinical trials because they are considered to possess insufficient decisional capacity.

## Treatment delays

Once a diagnosis of breast cancer is made, there can be delays in starting treatment; delay of this sort have been demonstrated for women with pre-existing mental illness who are elderly [50]. In this study, treatment delay was found for the lead up time to surgery after a diagnosis had been made, and also for the time to chemotherapy following surgery [50]. People with severe mental disorders have relatively poor survival rates after a cancer diagnosis and this is true independently of cancer stage at the time of diagnosis and independently of all other potential confounders [51]. This suggests that the relative uptake of breast screening may not be the crucial factor. The positive association between mental disorders and cancer mortality are more likely to be accounted for by differences in survival after cancer diagnosis than by delayed diagnosis.

## Treatment concerns

Survival after a cancer diagnosis depends to a large extent on the timeliness and quality of surgical treatment, radiation, and chemotherapy. For this reason, it is important to note that psychiatric patients in Australia have been reported to receive fewer chemotherapy sessions and less radiotherapy than patients without mental illness [52]. They also have been found to suffer more postoperative complications, and to have less access to palliative care compared to their peers [36]. This may be because women with severe mental illness are more likely than others to refuse or delay treatment, to miss appointments, or to drop out of treatment [53,54]. A Swedish study, however, has suggested another explanation - that, for patient, provider, and health system reasons, the healthcare provided to psychiatric patients is of lower quality than that provided to less stigmatized others [55].

## Mortality

The mortality rate from breast cancer is higher among women with schizophrenia than it is among the general population of women. This may be result of a combination of factors - the relative lack of screening leading to more advanced disease at the time of diagnosis, the delays and interruptions in treatment once the diagnosis is made, or the substandard quality of medical care provided to this population [53]. Whatever the reason, 15% of cancer deaths can be attributed to the interaction between breast cancer and severe mental illness [56].



## Discussion

It has been estimated that more than half the burden of cancer could be prevented by applying knowledge that is already available [57,58]. This estimate is especially applicable to women with mental illness who continue to bear a disproportionate cancer burden in terms of stage of illness at diagnosis and of mortality from their disease. One extra explanation for both increased incidence and increased mortality of breast cancer in this population is comorbidity - comorbid cardiovascular and metabolic illness resulting indirectly from mental illness (e.g. from sedentary habits, smoking, substance abuse, poor diet) and its treatment (e.g. antipsychotic-induced obesity and hyperprolactinemia) [59,60]. Prevention and treatment of co-morbidity is essential in this population. Finding ways to increase the breast cancer screening rate is also imperative. A recent Cochrane review concluded that there was “no RCT evidence for any method of encouraging cancer screening uptake in people with SMI” [61]. The Druss, et al. 2010 study [62], however, did show that two nurses in a community mental health setting who followed a manualized protocol improved the use of preventive care services almost three fold across the cancer care continuum of screening, diagnosis, treatment, and end-of-life care. The protocol included the provision of booklets containing medical information. It used motivational interviewing techniques, individual action plans, referrals to appropriate specialists, and coaching on how to effectively communicate with physicians. The nurses accompanied patients to medical visits whenever necessary. This was not a randomized controlled trial but, nevertheless, seems to show that actively engaging patients and involving them in decision-making about their health can overcome apathy. Cancer literacy is acknowledged to be vital, for both patients and care providers [36,63]. Cognitive challenges in patients with SMI can be overcome and their stress alleviated by repeated explanations and accompaniment to preventive health appointments. Decision aids have been shown to increase knowledge, lessen distress, and induce realistic expectations in patients facing difficult medical choices [47]. Despite significant challenges, a close collaboration between oncology and mental health should, according to this review of the pertinent literature, be able to ensure that women with severe mental illnesses receive high-quality cancer care [64,65].

## Conclusion

This review has focused on breast cancer in women with serious mental illness such as schizophrenia and psychotic disorders related to schizophrenia. There is a high incidence of breast cancer in these women, a relatively low uptake of cancer screening, overly long delays in seeking and obtaining appropriate treatment, and unnecessarily high mortality. Medical options for these women are often constrained by limited financial

resources and exclusion from clinical trials. Potential reasons have been discussed: Poverty, stigma, lifestyle factors, cognitive and motivational issues, underdeveloped social networks, and co-morbid conditions that are induced, in part, by the treatments currently used for psychotic conditions.

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