Improving Our Science in Psychosis Research with a Sex- and Gender-Based Analysis

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> *"From the moment of birth, if not sooner…" writes Kaschak, "…the body is gendered" (1992, p. 44). "There is no existence in our culture prior to and separate from gender. Almost invariably, the first question parents ask, even before birth, is: 'Is it a boy or girl?'"* (p. 45).

Abstract

The World Health Organization has identified gender as a "critical determinant of mental health and mental illness." In the schizophrenia field, however, while there has been an increased focus on sex differences, little is known about how gender impacts the risk of psychosis, its expression (e.g., content of hallucinations), coping, or recovery. In this chapter, I argue for a sex- and gender-based analysis (SBGA). I outline the literatures on gender and mental health, describe SGBA, related constructs and corresponding scales, and delineate some of the barriers to conducting SGBA, equipping the interested reader with the tools to conduct SGBA in psychosis research.

The term 'psychosis' is increasingly being used in preference to 'schizophrenia' due to the poor scientific validity and reliability of the schizophrenia classification [157–159] and thus is used in this paper to encompass schizophrenia, schizoaffective disorder, and first episode psychosis diagnoses. Generally, the term 'psychosis' refers to the 'symptoms' or anomalous phenomena such as hallucinated voices or unusual beliefs. Increasingly research focuses on these experiences specifically as opposed to diagnoses. In this paper, I will therefore use the terms 'psychosis' or 'psychotic' to refer to the anomalous phenomena as described in psychiatry and am using the term 'schizophrenia' where researchers have referred specifically to this diagnosis or to refer to the field in general.

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M. Sáenz-Herrero (ed.), *Psychopathology in Women*,
DOI 10.1007/978-3-319-05870-2_5

5.1 Introduction

In the health field, sex and gender are increasingly being recognized both nationally and internationally as important determinants and indispensable aspects of research [1–3]. The Canadian Institutes of Health Research's Institute of Gender and Health promotes "...the integration of gender and sex as routine considerations in all domains of health research" (p. vi) [161]. In the UK, government health policy has incorporated gender as a key determinant of health, service need, and service planning [4]. The World Health Organization [3] has identified gender as a "critical determinant of mental health and mental illness" (undated), and its 2004 report *Gender in Mental Health Research* states: "Integrating gender considerations in health research contributes to better science and more focused research, and, consequently, to more effective and efficient health policies and programmes" (p. 2). However, since Nasser et al. [5] criticized the status of schizophrenia research, more than a decade ago, for "the profound neglect of the role of socio-cultural factors..." (p. 351) and the role of gender in particular, few advances have been made in the field. One notable exception is the surge of research examining the relationship between trauma and psychosis, particularly the association of sexual abuse and hallucinations [6]. However, even with this line of inquiry, when it is known that there are differences in the rates and impact of sex and gender between men and women who have experienced sexual abuse in the general population [7–9], a sex- and gender-based analysis (SGBA) is lacking. It seems that people diagnosed with schizophrenia are still considered "genderless" [5].

One probable reason for the relative lack of attention to gender is that current conceptions of schizophrenia continue to emphasize the role of biogenetic factors. However, sociocultural and psychological factors are also clearly important. For example, studies in several countries have observed that migrants have a fivefold elevated risk of psychosis [10], suggesting that experiences of discrimination, social capital, and social defeat may contribute to the risk of illness [11]. Other studies found associations between early life adversities such as socioeconomic disadvantage [12], urbanicity [13, 14], early parental separation [15, 16], bullying at school [17, 18], and, as mentioned previously, sexual and other types of abuse [6] and the development of psychosis.

Psychological approaches, particularly cognitive behavioral models of psychosis, have implicated the role of core beliefs about the self, others/world, and future in the maintenance of delusional beliefs and hallucinated voices and emphasize links between life experience and/or trauma and psychotic phenomena [19–21]. For example, Morrison [22] suggests that negative beliefs about the self and the world are thought to be developed in response to trauma and are predicted to mediate the distress experienced in relation to psychotic phenomena. Birchwood et al. [23, 24] demonstrated parallels between the experience of subordination by voices and subordination and marginalization in the social world. Hayward et al. [25] recently reviewed 18 studies examining the nature of the voice-hearer's relationship with their hallucinated voices and found, as with the aforementioned studies, that collectively the studies suggest a correspondence between voice hearers' relationship with their voices and their interpersonal relationships in the social world.

While all of the aforementioned studies underline the importance of context, life experience, and sociocultural factors in the etiology, development, and expression of psychotic phenomena, none conducts an SGBA. An SGBA takes into account the role of both biogenetic and sociocultural factors by utilizing an analysis of the biological construct of sex and the sociocultural construct of gender.

Although there has been an increase in the research into sex differences in schizophrenia, it is still relatively neglected in comparison to research on other mental health disorders such as depression. Barker-Collo et al. [26] point out that a Medline analysis estimated that only about half of all articles on schizophrenia up to 2010 even record sex and a scant 2.5 % analyze research findings by sex. When sex differences have been examined, the authors indicate the focus is on the supposed biological base of such differences. To conduct SGBA, we must take into account both sex and gender for, as Nowatzki and Grant [1] argue, "Sex is a poor proxy for gender, as it is not capable of capturing the full range of social, political, and economic forces that affect health" (p. 265). Several researchers have suggested that examining gender could, in addition to increasing our understanding of the heterogeneity in expression and subjective experience of psychotic phenomena, clarify of some of the reported sex differences [5, 27–29], such as why more women than men seem to hear voices—findings that are observed in both clinical [30–32] and nonclinical populations [33, 34]. Much of the sex difference research is purely descriptive and does not identify the mechanisms responsible for producing any such differences [35, 36]. A gender analysis could possibly contribute to understanding the etiology and illuminate mechanisms involved elucidating the variability in some reports of sex differences (e.g., prevalence) [37].

An interesting example of research that demonstrates the importance of using an SGBA is illustrated by Lewine and Daniel et al. [29, 38] who examined sex differences in cerebral blood flow using positron emission tomography (PET) and found a higher rate of blood flow in women than in men (all healthy individuals). When femininity and masculinity was measured, however, it was discovered that high blood flow related far more strongly to femininity than biological sex.

In this chapter, I make a case for the importance of an SBGA, which is long overdue in schizophrenia research, outlining the literature on gender and mental health. First, I review relevant theoretical constructs for conducting an SGBA and describe how to conduct an SGBA.

5.2 Sex and Gender: What's the Difference? Constructs and Corresponding Research Measures for Conducting an SGBA

Several methodological problems plague gender research in the schizophrenia field. One of the most fundamental is the conflation of the terms sex and gender, which are often used inconsistently and/or interchangeably in the literature [5, 29]. As Johnson et al. [2] point out: "This conflation leads to confusion about the

contributions of sex and gender to health, and missed opportunities for developing appropriate medical interventions and policy responses" (p. 1).

Sex refers to: "The biological characteristics such as anatomy. . .and physiology. . .that distinguish males and females" [39]. Gender refers to ". . .the array of socially constructed roles and relationships, personality traits, attitudes, behaviours, values, relative power and influence that society ascribes to the two sexes on a differential basis. . ." [39]. It has been argued that: "The complex interconnections of sex and gender affect who we are, what we do, and how we are treated, and have profound effects on our health" [2].

5.2.1 What Is SGBA?

Sex- and gender-based analysis originated in international development research where, owing to significant evidence that biological, economic, and social differences between women and men contribute to differences in health risks, use of health services, health system interaction, and health outcomes, research began integrating a gender and sex perspective [40, 41].

Health Canada [41] has defined SGBA as:

> . . . an approach which systemically inquires about biological (sex-based) and socio-cultural (gender-based) differences between women and men, boys and girls, without presuming that any differences exist. The purpose of SGBA is to promote rigorous sex/gender-sensitive health research, which expands understanding of health determinants in both sexes, in order to provide knowledge which can result in improvements in health and health care. Gender-blind science fails to account for disparate life trajectories that are influenced by genetic endowment, environmental exposures and social and political environments.

Sex- and gender-based analysis incorporates multiple levels of analysis from the micro-individual level to the macro-social level, integrating other social determinants of health or diversity indicators:

> SGBA is meant to be applied within the context of a diversity framework, that attends to the ways in which determinants such as ethnicity, socioeconomic status, disability, sexual orientation, migration status, age and geography interact with sex and gender to contribute to exposures to various risk factors, disease courses and outcomes. Using a SGBA lens brings these considerations into focus and can help to formulate research, policies and programs that are relevant to the diversity of the Canadian populace [42].

Nasser [43] has advocated approaches to researching women's (and men's) mental health that:

> . . .take into account gender differences between men and women in a sociocultural context including differences in pay, social status, political power, burdens of domestic care, and mothering, relationship inequalities and rates of domestic violence as well as gender differences in social pressures and expectations (p. 25) [43].

An SGBA is one such approach.

Conducting SGBA occurs throughout all phases of the research process, starting with clearly differentiating and defining the concepts of sex and gender [41]. First,

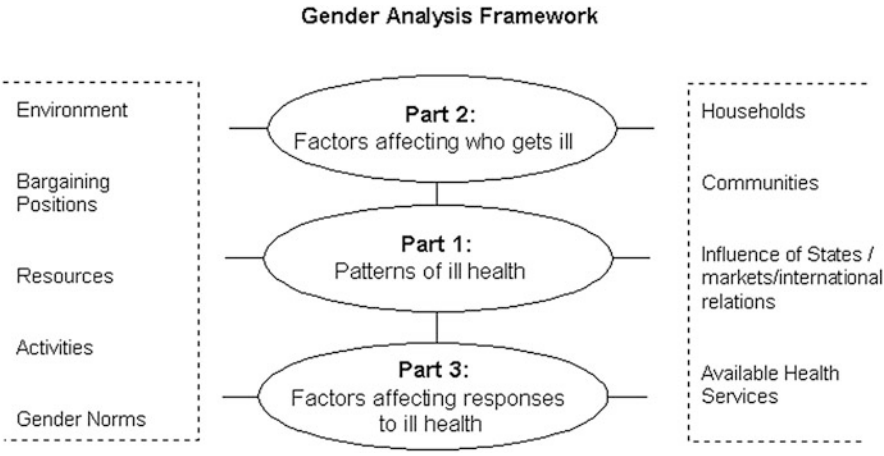

Fig. 5.1 Gender analysis framework (*Source*: Liverpool School of Tropical Medicine, Gender and Health Group, University of Liverpool, Reproduced with permission)

it is essential to include gender and sex in the research question(s) and/or hypotheses. Examining the extent to which past research has taken gender or sex into account is an important part of the literature review. Using representative samples is also very important in order to be able to conduct SGBA, as well as collecting data that are disaggregated by sex, a major methodological barrier in schizophrenia research. Whether conducting quantitative or qualitative methodologies, using an analytical approach that captures gender- and sex-based factors is also a very important part of the process in addition to considering diversity factors as they interact with sex and gender and affect exposure to various risk factors, illness course, and outcomes.

In order to conduct an SGBA, researchers not only examine sex differences but pay attention to the broader theme of gender, gender relations, institutionalized gender, and the larger social context as demonstrated in Fig. 5.1. This diagram, developed by the Gender and Health Group at the Liverpool School of Tropical Medicine, University of Liverpool for researching health problems and services, provides an excellent framework for SGBA that can also be applied to psychosis research. Multiple levels of gender (the interactional, the organizational/institutional, and the cultural) [44] are represented. A gender analysis makes explicit the social, cultural, historical, and political context of the lives of research participants, combining both micro- and macro-levels of analysis as shown in Fig. 5.1. This framework offers a range of approaches to assess the relationship of gender to a particular health problem, issue, or system. It also raises the issue of how gender guides the research methodology to be employed. Parts 1, 2, and 3 involve three stages of gender analysis. In the first stage, Part 1, gender-related differences in patterns of ill-health (or "health outcomes data") are examined: who gets ill (i.e., men and women of different ages, socio-economic and ethnic groups; *what* types of illness women and men get; *when* women and men become ill (e.g.,

time of year); and *where* women and men become ill. Parts 2 and 3 provide guidelines for investigating the interplay of gender and social, cultural, and economic factors that affect health and responses to ill-health. It is suggested that examination of these factors may require contextualized, descriptive, and analytical sources of information, dictating qualitative, participatory, and/or mixed research methods where perceptions, attitudes, and subjectivity are of interest. Each of the factors listed on the left of the matrices—environment, activities, bargaining position, resources, and gender norms—is an area of enquiry to be examined in the context of each of the levels of society—households, communities, and states/markets/international relations, available health services—or contexts—listed to the right of the matrix. *Environment* refers to women's and men's living and working context including the general social and economic milieu. *Bargaining positions* denotes decision-making power within gender relations. Gender differences in women's and men's access to and control over *resources* such as money, transport, time, information, political power, and influence is also an important consideration in this analytical framework. *Activities* represent activities of daily living, including what women and men do at home and at work. These are based on culturally prescribed roles and include:

- *Productive* roles, i.e., paid work, or production of goods for subsistence or sale
- *Reproductive* roles, i.e., domestic tasks including cooking, cleaning, caring for children and sick people
- *Community* roles, i.e., participating in various tasks associated with managing community organizations, and operating and maintaining community services [45].

Different activities carry different mental and physical health risks. *Gender norms*, often implicit and unspoken, are the beliefs, prescriptions, and proscriptions for women and men's capacities, characteristics, social behaviors, roles, and interests (Liverpool School of Tropical Medicine, undated). This framework incorporates the four core concepts of SBGA: sex, gender, diversity, and equity as outlined by Clow et al. [40]. Examining the intersection of other social hierarchies with gender is a necessary aspect of approaching gender as a multidimensional construct.

Marsh [45] has criticized the mental health services for ignoring the context of individual's lives, in particular, women with severe mental illness who, like women in general, because of gender norms, are affected by the burden of caring for others, often prioritizing their needs above their own, placing more emphasis on their relational environment, which can both undermine health and act as a social buffer to stress [46]. Examining such differences in a life context has also been ignored in schizophrenia research. Using the above framework for SGBA in psychosis research has utility in exposing the possible impact of these variables on well-being by utilizing the various matrices, such as *environment*, *gender norms*, and *activities*, for example, with obvious implications for gender-responsive interventions.

5.2.2 The Constructs

5.2.2.1 Gender: A Multidimensional Construct

Recent conceptualizations of the feminine and masculine have moved beyond a simplistic understanding of global and opposing personality traits based on a unifactorial, bipolar model to a multidimensional and multifactorial construct [47, 48] operating ". . .on multiple levels including the subjective and intrapsychic, the interactional, the organizational and institutional and the cultural" [44] and encompassing the dimensions of gender-typed personality traits [49, 50], gender-related interests, global gender role behaviors [42], masculinity ideology [51], gender role conflict [52], gender role strain [53, 54], gender role stress [55], gender role conformity [56, 57], gender identity [48], and femininity ideology [42]. In order to represent the complexity of gender, research must, therefore, address gender as multivariable. Knaak [44] suggests delineating three overarching dimensions for the purposes of research: the subjective (e.g., man/woman/transgendered); the cultural (e.g., masculinities/femininities), and the institutional (e.g., social–structural). She argues that this multidimensional interpretation demands that ". . .gender cannot be adequately understood in isolation from other social hierarchies" (p. 306) and thus it is important to examine how the dimensions of class and race, for example, shape and interact with gender. Another obvious implication of the multiplicity of gender for research design is the need to utilize several measures, as any one gender measure may tap only a small portion of the gender construct [47].

While a robust body of literature examining gender exists in the fields of social psychology, developmental psychology, and women's and men's psychology, clinical psychology has paid scant attention to issues of gender [58]. Several constructs with corresponding measures generated from these fields are defined below. A lack of awareness of their existence may constitute another barrier to conducting SBGA in schizophrenia research.

Gender ideology is defined as: ". . .an individual's internalization of cultural belief systems regarding gender roles" [42], operationally defined by gender role stereotypes [59]. It is distinct from the identity/trait approach where one is presumed to *possess* particular sex-based personality traits, in that the ideology approach views gender norms as being socially constructed. In this approach one can endorse the ideology that men and women should have these sex-specific characteristics without necessarily possessing them oneself. The process of internalization of cultural messages may often be barely noticed on a conscious level and taken for granted as a common place and natural aspect of daily life. The term *ideology* is used to convey ". . .the superordinate, organizing nature of these beliefs at both the individual level and the social-structural level," thus constituting a belief system [54]. Masculinity ideology [51] refers to the internalization of cultural beliefs regarding masculinity specifically; similarly, femininity ideology refers to the internalization of cultural beliefs regarding feminine gender role norms [42, 60]. The Male Role Norms Inventory-Revised (MRNI-R) scale was developed to measure masculinity ideology, identifying seven factors: avoidance of femininity, negativity toward sexual minorities, self-reliance, aggression, dominance, non-relational attitudes toward

sex, and restrictive emotionality. The following is a sample item: "A man should not react when other people cry." Items are rated on a seven-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating higher levels of endorsement of traditional masculinity ideology. Levant et al. [42] also developed the Femininity Ideology Scale (FIS), which has five domains: stereotypical image and activities, dependence/deference, purity, care-taking, and emotionality. An example item is: "Women should dress conservatively so they do not appear loose," rated for agreement on a five-point Likert-type scale.

Gender schema refers to a cognitive structure in which information is processed according to sex-linked associations or *sex-typing* defined as: "The process by which a society thus transmutes male and female into masculine and feminine" [50]. Bem [61] argues that these schemata form in response to societal prescriptions, norms or standards constituting appropriate masculine and feminine behavior socialized through such forces as family, school, peers, and the media. These norms shape gender identity and can contribute to gender role strain [50, 62]. The Bem Sex Role Inventory was developed to measure sex-typed traits and gender identity. However, more recent research has criticized the scale with regard to its validity in terms of measuring self-perceived, gender-linked personality traits [59].

Gender roles "...are the behavioural norms applied to males and females in societies, which influence individuals' everyday actions, expectations, and experiences. Gender roles are expressed and enacted in a range of ways, from how we dress or talk, to what we may aspire to do, to what we feel are valuable contributions to make as a woman or a man" (p. 5) [2]. The Gender Role Socialization Scale was developed to assess the degree of internalization of gender-role messages in women (e.g., "I feel embarrassed about my own sexual desires" rated for agreement on a seven-point Likert-type scale), and how these messages may affect health and well-being. The developers suggest that the scale "...can also be used to examine the relationship between internalized gender role messages and the various types of mental health concerns that women experience in order to facilitate the development of prevention and treatment protocols" (p. 190) [63].

Gender identity refers to how we see ourselves as female or male constructed in the context of strong societal messages and prescriptions for the *acceptable* gendered role for one's presenting sex [2]. Gender identity influences our aspirations, social interactions, behaviors, characteristics, and body image [2, 64–66].

Institutionalized gender represents the unequal power distribution between the sexes in the political, educational, religious, media, medical, and social institutions in any society through different expectations and opportunities for women and men and girls and boys, such as social and family roles, job segregation, job limitations, dress codes, health practices, and differential access to resources such as money, food, or political power [2].

Gender role stress denotes the cognitive appraisal of specific situations as stressful when individuals judge themselves to be failing to live up to imperatives of traditional gender roles [67]. Corresponding scales have been developed for each sex: the Masculine Gender Role Stress Scale and the Gillepsie and Eisler FGRSS [67]. Each has five scales comprising particular situations that might cause stress

owing to a feeling of not meeting feminine or masculine gender role norms. The following are examples of items on the MGRS: "Admitting that you are afraid of something"; "Staying home during the day with a sick child." Sample items from the FGRS are as follows: "Having others believe you are emotionally cold"; "finding that you have gained 10 pounds."

Gender role strain refers to the negative psychological consequences experienced by individuals when they try to live up to an idealized gender role schema [53]. Within this framework, gender role strain occurs partly because stereotyped gender role norms are often contradictory, unattainable, and inconsistent. This construct is embedded in the overarching theoretical framework of the gender role strain paradigm developed by Pleck [53]. This paradigm "emphasizes the centrality of gender ideology as a cultural script that organizes and informs everything from the socialization of small children to the emotions, cognition, and behaviour of adults" (p. 130) [42]. Conceptions of gender roles in the gender role strain paradigm depart from the older personality trait—orientations of gender role identity in that they are understood to be acquired via a "...variable process strongly influenced by prevailing gender ideologies, which themselves vary according to social location and cultural context" (p. 131) [42]. Pleck identified three subtypes of gender role strain: discrepancy strain, dysfunction strain, and trauma strain.

(1) Discrepancy strain suggests that stereotypical gender role standards are exist and that individuals attempt to conform to them to varying degrees. Pleck hypothesized that "not conforming to these standards has negative consequences for self-esteem and other outcomes reflecting psychological well-being because of negative social feedback as well as internalized negative self-judgments" (p. 13) [54].
(2) Dysfunction strain applies to the negative consequences of those who do conform to normative gender roles such as aggression and emotional constriction as prescriptions for *masculinity*, which are psychologically harmful, promote unhealthy behavior, and as such cause psychological strain. Similarly, the very same qualities that characterize depression and low social rank such as passivity, submission, perceptions of self as inferior or in an unwanted subordinate position, and low self-confidence [68], for example, have been regarded as normal and desirable qualities of *femininity*. These gender role norms are encouraged through socialization, *tradition*, and discrimination [69–72].
(3) Trauma strain refers to the traumatic experience of certain groups of men whose gender role strain has been particularly severe such as war veterans, survivors of child abuse, and marginalized groups such as men of color and gay and bisexual men.

When Pleck developed the gender role strain paradigm, it was within the context of a critical examination of masculinity ideologies. Since then it has been widely used as a framework for understanding and researching gender, primarily in the field of men's psychology [59, 73]. However theoretically, the gender role strain paradigm is also relevant for women, as has been demonstrated by other researchers

[53, 54, 74, 75, 154]. Some researchers have suggested that men experience more social pressure to adhere to gender roles than women [59, 76]. In fact, Levant has described the need to transform traditional notions of masculine ideology, which he has termed "a new psychology of men," as "overdue and urgently needed" (p. 259), pointing to the disproportionate representation of men experiencing public and social health problems resulting from the male role socialization process, such as substance abuse, homelessness, perpetration of family and interpersonal violence, estrangement or detached fathering, sex offenses, fatal automobile accidents, and lifestyle and stress-related fatal illnesses [73].

Gender role conflict (GRC) is defined as "a psychological state in which socialized gender roles have negative consequences for the person or others [that] occurs when rigid, sexist, or restrictive gender roles result in personal restrictions, devaluation, or violation of others or self" (p. 130) [77]. In other words, GRC refers to the interpersonal and intrapersonal conflict that arises from the rigid enactment of traditional gender roles, from the violation of gender roles, or from gender role devaluations (e.g., men who freely express emotions may be devalued by others because emotionality is associated with femininity). An example where both inter- and intrapersonal conflict could potentially occur is when men "...internalize masculine gender role ideals that encourage for example, aggressiveness, overemphasis on achievement, and relational emotional disconnection" (p. 334) [61]. Gender role conflict is related to the concepts of gender role strain and gender ideology. Patterns of gender role conflict have been hypothesized as observable negative outcomes of *gender role strain* [78]. O'Neil and colleagues [52] developed the Gender Role Conflict Scale-I (GRSC-I), an empirically derived measure of male gender role conflict or gender role strain, that has been described as "...readily complementing masculinity ideology measures" (p. 151) [78]. The scale assesses men's gender role attitudes, behaviors and conflicts in four domains: restrictive emotionality, success/power/competition, restrictive affectionate behavior between men, and conflict between work and family relations. The GRSC-II was developed to measure men's degree of comfort or conflict in specific gender role conflict situations.

5.2.3 Methodological Issues: Barriers to SGBA in Psychosis Research

5.2.3.1 Underrepresentation of Women in Research Studies

A significant limitation with schizophrenia research inhibiting a sex- and gender-based analysis is the underrepresentation of women in research studies [79–81]. In fact, Longenecker and colleagues [79], in their analysis of epidemiological incidence and non-epidemiological study participation, found "...a widespread mismatch between the incidence of schizophrenia in females and their participation in research" (p. 242). They cite the incidence rate of 1.4 male schizophrenia patients to every female patient, or 58 % men, taken from a recent meta-analysis by McGrath and colleagues in 2008. Their analysis reveals that this imbalance is exaggerated in non-epidemiological studies, where 66 % of research participants are men. They

report that this overrepresentation of males in the literature has been consistent over the last two decades. Focusing on the incidence of first-episode psychosis, Iacono and Beiser [82, 83] describe an excess of men in most studies and report that in many instances the male to female ratio among study participants exceeds 3 to 1, which they attribute to a higher incidence of schizophrenia in men than in women.

5.2.3.2 Aggregated Data/Controlling for Sex

A further factor in schizophrenia research inhibiting an SGBA is that most studies do not provide information on sex or gender separately or where they do in some of the few studies where large numbers of women have been recruited, researchers have "controlled for sex" rather than treating women and gender as important areas to explore [81, 84, 85].

5.2.3.3 Sex Bias in Diagnosis/Sampling Bias

Both sex bias in diagnosis and sampling bias confound the actual rates of incidence and prevalence. For example, women in older age groups are at a higher risk of developing psychosis than men; thus, male–female incidence ratio studies should ideally include participants of all ages [86]. Studies that are limited to inpatients may also promote sampling bias owing to the overrepresentation of men, which Aleman et al. [86] suggest is because of a less favorable course of the disorder for the male sex citing the example of violence and aggression being more common in men. Psychosocial aspects of gender role norms may be partly related to this overrepresentation. For example, Walker and Lewine point out that male patients are more likely than female patients to display antisocial behavior and have police contact and criminal records, leading to the perception by treatment providers and families that men are more aggressive and threatening. Conversely, female patients are viewed as more helpless, withdrawn and depressed. They suggest that these perceptions, in addition to self-perceptions of men and women (women are more likely to view themselves as ill, as needing treatment and to seek and comply with treatment), partially influence whether a person is in treatment, particularly in an inpatient setting. Seeman [87] and Falkenburg and Tracy [88], in their reviews of sex differences, have also pointed to higher expectations of families for sons with regard to education and achievement than daughters, resulting in higher expressed emotion (EE) in families toward sons and perceptions of greater need for treatment for sons.

In addition, some authors have also suggested that because there are more women experiencing co-morbid affective symptomatology, women are predominantly diagnosed with schizoaffective disorder and it may be more difficult to assign categorical diagnoses to women than to men [89, 90].

Epidemiological research adopting SBGA in schizophrenia is an important factor in the reduction of methodological artifacts.

5.2.3.4 Gender in Context

Another major methodological challenge in conducting SGBA involves how to incorporate the multiple social categories and determinants, such as ethnicity, social class, sexual identity, age, and culture, that intersect with gender, and that have an

impact on the distribution of health and illness within and across populations [64, 65]. Researchers advocating an SGBA highlight the need to include social and biological determinants, which overlap and work together to produce health, but at the same time acknowledge both the conceptual and analytical challenges this creates. Researchers are increasingly improving ways of doing this. Johnson et al. describe some promising models that facilitate the investigation of both biological and multiple social influences in a single study [64, 65]. For example, they recommend employing intersectional analyses, which acknowledge a person's multiple social identities, and multilevel and systems modeling, as they can simultaneously analyze both individual-level and group-level factors that have an impact on health and disease. An in-depth discussion of these approaches is beyond the scope of this chapter; suffice it to say, awareness of the available analytical models to address some of these challenges is a helpful first step in promoting an SBGA in schizophrenia research.

5.3 Gender: A Critical Determinant of Mental Health

5.3.1 Institutionalized Gender: Social–Structural Level Oppression

> Emerging evidence indicates that the impact of gender in mental health is compounded by its interrelationships with other social, structural determinants of mental health status, including education, income and employment as well as social roles and rank. There are strong, albeit varying, links between gender inequality, human poverty and socioeconomic differentials in all countries [3].

Referring back to the definition in the first section of this paper, we saw that *institutionalized gender* refers to the distribution of power between the sexes at the system level within political, educational, religious, media, medical, and social institutions in any society. These institutions shape the social norms that delineate different expectations and opportunities for women and men, such as social and family roles and practices, job limitations, for example, and differential access to resources such as money, food, or political power. Such differential opportunities and access may lead to differences in health risks, health services use, health system interaction, and health outcomes for men and women [2, 3, 40].

We have known for quite some time that subordinate group status affects mental health [3]. In the *American Journal of Psychiatry* 30 years ago, Carmen et al. [91] pointed out that the:

> . . .link between women's disadvantaged status and their mental health creates an obligation for mental health professionals to understand how the social context contributes to the origin and persistence of the problems of their patients (p. 1319).

With increasing evidence of this link, particularly research emphasizing the role of trauma, social inequality, and migrant status in psychosis, a lack of gender-based analysis is conspicuous. This section underlines the relevance of conducting both micro- and macro-levels of analysis through SGBA in psychosis research.

5.3.1.1 Gender-Specific Determinants

The Gender in Mental Health Research Report [3] outlines several gender-specific determinants of mental health, such as gender-based violence (physical, sexual, psychological), gender-based income disparity, unpaid labor, and lower social rank. In their review of sex differences in schizophrenia, Falkenburg and Tracy [88] cite studies that demonstrate the differential gender-exposure and risk patterns that disproportionately affect men and women with psychosis. For women these include sexual abuse, socioeconomic disadvantage, and duty to assume responsibility for the care of others [3]. Other researchers have also reported that women with serious mental illness are also at a greater risk for revictimization and for post-traumatic stress disorder [92]. Falkenburg and Tracy point out that despite lower fertility rates than community samples, over 50 % of individuals with a schizophrenia diagnosis become parents with the male partners often absent and approximately one-third losing custody of their children [88]. Single parenting has been identified by the World Health Organization [3] as a risk factor for living in poverty, and an especially high risk for poor physical and mental health.

Gender-specific risk factors for men with psychosis include different responses from relatives [37] where differential gender role expectations lead to, for example, more consistent and severe criticism from relatives (or high EE), increasing relapse and having a negative impact on illness course [87, 88]. Several studies examining high EE report differential responses and attitudes of relatives toward men and women with psychosis [30]. For example, in their review, Falkenburg and Tracy identified lower parental tolerance of symptomatic behavior and sense of responsibility for caring for men, higher levels of fear and conflict owing to higher rates of aggression in men, increased guilt and self-blame and lower attendance at therapy in families of men [88]. Even when controlling for symptomatology, gender role expectations of parents influenced the hospital outcomes of their sons or daughters [93].

Al-Issa cites studies where differential gender role expectations for men and women and the lower social status ascribed to women have an impact on access to treatment [94]. For instance, he outlines studies of French–Canadian villages, where communities were helpful to their young men who were suffering from delusions but not their young women, and families were willing to pay for a son's treatment but not for a daughter or wife [95].

In an original 26-year period cohort study in Sweden, Månsdotter et al. [96], grounding their research in gender relational theory, examined the effects of gendered life in childhood and adulthood on mental health, focusing on the spheres of mother's paid/unpaid work, childcare practice, gendered partnership, and gender ideology. The investigators based their research on the well-accepted theory that the improved gender equality of Nordic countries has had an impact on the health patterns of men and women. Women ($n = 421$) and men ($n = 526$) were followed and surveyed at five different time-points, from age 16 to age 42, with a comprehensive questionnaire developed by the investigators. Gendered ideology was measured using a scale indicating support for societal gender equality ranging from 1 (fully supporting a gender-equal society) to 10 (fully rejecting a gender-

equal society), and categorized into traditional: "ranking 4–10," and non-traditional "ranking 1–3." Similarly, gendered partnership and gendered childcare also used a five-point Likert-type scale, each asking a question about the perceived overall equality in one's relationship with a partner and division of childcare responsibility, categorized into traditional and non-traditional. The main findings were that for women, reduced anxiety was associated with a more gender-equal ideology at age 30, while for men, reduced depressive symptoms were associated with more gender-equal childcare division at age 42. Månsdotter and colleagues speculate that the reduced depressive symptomatology for men may be related to the health-promoting effects of expanding social roles and childcare per se for mental health and specifically the positive influence of increased intimacy. One of the study limitations identified by the authors includes a lack of statistical power when categorizing individuals into traditional or nontraditional, and when stratifying the analyses by gender. Nevertheless, this type of research demonstrates the utility of employing an SBGA for incorporating both micro- and macro-levels of analysis, as was done here through examining gender relations, institutionalized gender, and gender ideology.

5.3.2 Gender Role Socialization and Mental Health: Internalized Oppression

In addition to the deleterious effects on the mental health of women due to gender inequality, men too suffer adverse effects from limiting gender role norms. A large body of literature spanning decades emphasizes the effects of gender on mental health, with empirical investigations demonstrating harmful psychological impacts (depression, low self-esteem, and substance abuse, for example) of internalized gender role expectations on both men and women [54, 61, 67, 70, 72, 97–101, 154]. More recent research demonstrates an association between higher masculinity ideology and increased PTSD symptomatology in male veterans [102].

5.3.2.1 Gender Role Socialization, Stress, and Coping

Gender role expectations have been shown to correlate closely with differential mental health problems according to sex [67]. For example, rates of depression, agoraphobia, eating disorders, anxiety disorders, and PTSD are much higher for women than for men. Conversely, rates of substance abuse and antisocial behavior are higher for men [3].

> According to gender role stereotypes, women are "expected" to be submissive, dependent, and anxious about appearance, whereas men are "expected" to be indulgent, aggressive, and demonstrate sexual prowess [67].

Empirical investigations provide evidence that cognitive appraisal and coping is influenced by gender role socialization resulting in gender differences in vulnerability to certain stressors [67, 155]. Gillespie and Eisler [156], in 1992, developed models of gender role stress, drawing explicitly on the cognitive stress model [103],

in which stress occurs owing to the cognitive appraisal that one has violated gender role imperatives. These models have been tested using the masculine and feminine gender role stress scales described earlier. With the development of these scales, empirical studies have shown an inverse relationship between gender role stress and measures of physical and psychological well-being for both women and men [55].

A review of stress research of the past few decades by Dedovic et al. [104] highlights some recent results from endocrinological, developmental, and neuroimaging studies that suggest that gender socialization might play an important role in the metabolic effects of stress. Dedovic et al. also suggest that as some differences between men and women in hypothalamic–pituitary–adrenal (HPA) axis responses to psychosocial stressors cannot be explained by biological variables alone, gender is likely to be a critical factor, and propose a model that integrates these specific findings, highlighting gender socialization and stress responsivity [104]. The authors point to research that manipulates the psychosocial stressor context or uses stressors emphasizing achievement versus social integration, which provide strong support for the role of gender in explaining male–female variations in stress responses.

Surprisingly, the impact of gender role socialization on cognitive appraisal and coping with regard to psychosocial stressors has not been explored in individuals experiencing psychotic phenomena, obviously an important area for inquiry considering the role of stressful life events as precipitants for psychotic experiences, in shaping the content of hallucinated voices and delusions [105], and in men's and women's responses to these phenomena. However, Myin-Germeys et al. [106], in a very interesting study examined sex differences in stress reactivity utilizing experience method sampling. They report that the women in their sample of 42 participants meeting the criteria for psychotic disorder (22 men; 20 women) were more likely to display elevated stress reactivity or emotional reactivity (reflected in both an increase in negative effect and a decrease in positive effect) to daily stress than men. The authors suggest that emotional reactivity to daily stress may be an underlying etiological mechanism for psychosis and constitutes part of the liability to psychosis. The authors speculate that as the small stressors and disturbances in daily life are equally distributed among men and women, it may be the case that women develop higher levels of stress sensitivity through a history of increased exposure to life events and possibly also higher levels of exposure to trauma. However, they did not investigate cognitive appraisals regarding why participants found a particular event stressful, which would have extended findings further with regard to possible underlying cognitive mechanisms and gender differences in terms of what constitutes stress for men and women, thus enabling an SGBA. Research employing an SGBA could be useful for examining HPA axis responses in relation to psychotic experiences and other life stressors, for example.

5.3.2.2 Gender and Self-Esteem

Because sex and gender distinctions are central, important, and pervasive in Western culture, it can be argued that gender is the earliest, most central, and most active organizing component of one's self-concept [47].

According to a cognitive psychological framework, individuals learn *shoulds* and *musts* from important persons in their lives and observe how others act and interact and the societal messages conveyed about those people. Mahalik [61] outlines how masculine/feminine gender role socialization contributes to self-schemata or gender role schemata influencing self-esteem. He discusses how gender role socialization contributes to gender-related cognitive distortions for men and women who are experiencing gender role conflict and underlines the implications for cognitive behavioral interventions. Empirical investigations have demonstrated associations between gender role conflict and depression as well as decreased self-esteem in men [100]. The underlying theoretical framework for this work is the gender role strain paradigm. Similarly, a large body of research based on objectification theory [107–109] has examined the impact of gender role socialization, and in particular, its deleterious impact of on female body image and self-esteem.

Mahalingam and Jackson [99] point to ethnographic research that indicates that idealized cultural gender roles shaped by patriarchy, such as chastity and masculinity, play a critical role in controlling women's and men's behavior through cultural gender imperatives, ultimately influencing self-worth. In their research with son preference societies they suggest that such societies resulting in an excessive male population lead to hypermasculine and hyperfeminine ideals, increasing patriarchal power structures, with detrimental impacts on mental health. This research underlines the importance of incorporating the multiple social categories and social determinants, such as ethnicity, social class, and culture, that intersect with gender to have an impact on mental health in research designs.

As it is known that self-esteem is a significant factor in most mental disorders it is not surprising that researchers have suggested that self-esteem might play a role in the origin, maintenance, and consequence of psychotic experiences, similar to that of depression [110–112]. A prospective general population study found that self-esteem was a risk factor for psychosis [112]. Considering that sex and gender are key features of self-esteem and that self-esteem is implicated in psychotic experience it follows that a sex and gender analysis is very important for both enhancing our understanding of psychosis and implementing more meaningful psychological interventions.

An SGBA can increase our understanding of the interplay among gender, self-esteem, and psychotic experiences, particularly in the light of the finding of a recent study that self-esteem is a predictor of hallucinations and persecutory delusions in early psychosis and that women report lower self-esteem than men [113]. In fact the investigators found that sex was a significant predictor of self-esteem in their first episode sample, with women having significantly lower levels of self-esteem than men, even after adjusting for differences in levels of depression. Another study of sex differences from the Danish Opus study of first-episode schizophrenia spectrum disorders, also reported that although women scored higher in global functioning than men, they scored lower on self-esteem and self-confidence [114].

5.3.2.3 Gender and Depression

Much of the research on sex differences in depression (i.e., the consistently reported finding that the prevalence of depressive disorders is greater in women than men at a rate at least twice that of men) [3] has focused on gender roles owing to the lack of empirical research supporting biological theories [115]. Various researchers have emphasized the importance of gender role expectations with regard to marriage, parenting, and employment, for example, in the etiology of psychological disorders [70]. The differing rates of depression for men and women are explained by differing societal expectations, according to several researchers [116]. Interestingly, rates of depression increase dramatically for both boys and girls during the 15- to 18-year age group, but the female rate rises to double the male prevalence rate [117].

In psychosis, the presentation of depression forms a very complex picture [118]. Birchwood distinguishes three core pathways of emotional disorder in psychosis:

(1) As intrinsic to the psychosis diatheses
(2) As a psychological reaction to psychosis and its sequelae referred to as *post-psychotic depression*
(3) As the result of a disturbed developmental pathway

Researchers also point to the difficulty of sometimes disentangling "negative symptoms" and depression, with some researchers suggesting that it is goal-directed behavior and "defeatist beliefs" that might be underlying negative symptom presentation [119–121], features also common in depression. The repeated finding that women with psychosis present with more affective symptomatology than men and men with more negative symptomatology, may be reflecting the differential expression of depression between men and women in the general population [160]. Here, again, an SGBA would be helpful in exploring these complex presentations.

5.3.2.4 Gender and Men's Health

A large body of work from the field of men's psychology has demonstrated the harmful effects of gender role socialization on men's psychological and physical well-being ranging from depression, lower self-esteem, substance abuse, aggression, elevated blood pressure, and high-risk health habits [61, 100]. Some authors have pointed out that men who violate male gender role norms are subject to more social disapproval than women [53].

Good et al. [122], examining male gender role conflict and psychological distress as measured by the Symptom Checklist-90-Revised, found associations of masculine gender role conflict with depression and interpersonal sensitivity as well as paranoia, psychoticism, and obsessive compulsivity in male students from two different US universities who had requested counseling services. The strongest association for psychoticism was with restrictive emotionality. Paranoid ideation was also related to restrictive emotionality in addition to success, power, and competition, components of male gender role conflict. Obsessive compulsivity was associated with men's conflict between work and family relations. The authors

emphasize the clinical implications associated with the harmful psychological impacts of male gender role socialization:

> Given the relations between a range of psychological symptoms and masculine gender role conflict, it appears that men in US society might be psychologically healthier if they did not attempt to limit their feelings, cognitions and behaviours to those prescribed by masculine gender roles. In addition, given the relations observed here, counsellors would be wise to examine the extent to which male clients experiencing depression, interpersonal sensitivity, obsessive-compulsivity, and even psychosis have concerns or discomfort related to male gender roles (p. 48).

5.3.2.5 Gender and Impact of Trauma/Sexual Abuse

A number of studies examining gender ideologies and trauma have reported struggles with sexual identity, negative gender schemata, and shame in both men [9] and women who have experienced sexual abuse [8, 123]. They point out how one's core beliefs about themselves, others, and their relationships are often challenged by the experience of childhood sexual abuse. Studies, particularly qualitative research, reveal that the socio-cultural context and gender in particular influence how individuals make meaning of and respond to traumatic experience [8]. As trauma is common in people with psychosis and there is an association of childhood sexual abuse with hallucinations [6, 84, 124, 125], this line of inquiry may be fruitful in terms of increasing our understanding of how gender interacts with trauma. For example, gender shapes illness experience and presentation in terms of the content of hallucinated voices and experience of and relationship with voices and others in one's social world, underlining obvious implications for intervention. Furthermore, in the light of research that suggests that negative beliefs about the self and the world might be developed in response to trauma mediating the distress arising from psychotic phenomena [22], an SBGA has the potential to increase our understanding of how gender role norms have an impact on such negative self-schemata and core beliefs, ultimately influencing self-esteem and distress. Recent studies have revealed that the sexual content of voices and/or delusions predicts a history of childhood sexual abuse [126–129]. These researchers also point out the important clinical implications for assessing childhood trauma and trauma-related symptoms and for offering a range of trauma-focused treatment interventions. Birchwood et al. [24] suggest that earlier experiences of trauma such as abuse and harassment may be related to the sense of powerlessness and subordination the person experiences in relation to their hallucinated voices and others in their social world. In addition, the few studies that examined sex differences in rates of sexual abuse in psychosis samples reported that CSA was almost double for women than men [130–132] (in an epidemiological study, CSA was five times greater for women than men [133]), that it moderated the effect of sexual trauma and psychosis (being stronger for women) [124], that the prevalence of sexual trauma was higher in ultra-high-risk (UHR) women [129], and in a large epidemiological case–control study of first-episode psychosis, an association of sexual and physical abuse with psychosis was found in women but not in men [134]. Mixed samples found an incidence (3:1) of sexual abuse among women and conversely a

higher incidence of physical abuse among men (3:2) than among women [135]. Furthermore, the finding that sexual abuse increases the chance of conversion in UHR individuals almost threefold has important implications for SGBA when conducting research, for prevention [136], as well as for psychological treatment interventions, underscoring the importance of both trauma-informed/-specific and gender-specific approaches to treatment.

In an attempt to redress the lack of studies examining gender-specific responses to child abuse in psychosis, Barker-Collo and Read [137] examined the relationships between child physical and sexual abuse with psychoticism and other subscales of the Symptom Checklist-90 Revised, in addition to coping styles [26]. The authors indicate that while men and women reported similar levels of psychoticism in the absence of abuse, when abuse had been experienced, men's reports of psychoticism and depression increased more than those of women, peaking with sexual abuse. Men also reported a sharper increased overall severity of difficulties on the Global Severity Index (GSI) than women when abuse was reported, as well as a significant elevation in paranoid ideation for men in the sexually abused only grouping. Other differential responses to abuse reported by the investigators were that men are less likely to employ the coping style: "seeking guidance and support" and more likely to employ "emotional discharge" (when sexually but not physically abused), which refers to "take it out on other people when you felt angry or depressed." The authors point out that the finding that males employ "emotional discharge" to cope is consistent with other research that demonstrates that men typically respond to abuse with ". . .externalizing and aggressive behaviour, sometimes reaching criminal levels as adults" (p. 37). For individuals who had been both sexually and physically abused, psychoticism and paranoid ideation were elevated for both sexes. Barker-Collo and Read [26] emphasize that, ". . .sexual abuse is rarely spontaneously disclosed by either gender. Boys are not only less likely than girls to spontaneously tell anyone at the time of the abuse but also take longer to do so, or to seek help for the effects of the abuse, as adolescents or adults" (p. 37). This factor, in addition to the findings demonstrating differential coping styles between both sexes who have been abused, underlines the importance of an SGBA in psychosis research for understanding the pathways from trauma to psychosis and the underlying mechanisms involved. For this reason, the authors urge researchers to incorporate a gender analysis into future psychosis research.

5.4 SGBA: Aiding Clarification of Sex Differences

Understanding the impact of gender roles has utility for clarifying some of the reported sex differences in schizophrenia (to date, the literature has failed to explain [adequately] how these differences came about [138]). For example, the repeated finding that men experience more *negative symptoms* than women could be possibly clarified if examined from a gender perspective. Difficulty experiencing, fantasizing, thinking about, and expressing one's emotions or *alexithymia* [139], is more common in men than in women in the general population [140], and men with higher levels of gender

role conflict tend to have higher levels of alexithymia [59, 141, 142]. This research has emphasized that one normative masculine role requirement is the restriction of emotional expression, with empirical research finding a relationship between the endorsement of traditional masculinity, ideology and alexithymia in men. In the psychosis field, emerging research has demonstrated within the negative symptom construct, two subdomains: diminished expression and a motivation that has been found to be related to goal-directed behavior and defeatist attitudes [119–121], with motivation identified as the key component especially with regard to functional outcome [120]. Could the subdomain of diminished expression be related to an exaggerated form of alexithymia? Van't Wout et al. [143] found that men (but not women) with schizophrenia reported greater difficulty verbalizing and identifying their emotions and heightened levels of emotional arousal. Research utilizing a sex- and gender-based analysis could be helpful in exploring this possibility, employing scales such as the Gender Role Conflict Scale I (GRCS-I) [52], an empirically derived measure of male gender role conflict or gender role strain assessing restrictive emotionality as one of four domains that include success/power/competition, restrictive affectionate behavior between men, and conflict between work and family relations. Furthermore, as male role norms emphasized achievement and competition, the subdomain of amotivation as related to goal-directed behavior and defeatist attitudes may also have particular relevance for young men who are struggling with these societal messages in their developmental trajectory. Foussias and Remington [120] remind us that "…the earliest descriptions of schizophrenia emphasized a disturbance of volition/will as the fundamental underlying process in its pathology" (p. 359). This is an interesting area to pursue because psychosis onset appears in late adolescence, earlier in men than women, typically at the time when developmental stressors and social roles such as sociosexuality, achievement, and vocational issues are particularly pronounced for young men [87, 144, 145]. Several authors point out that childhood and adolescence are critical periods for "navigating influential and culturally variable constructs of masculinity/femininity …as part of a complex set of negotiations of an individual's gendered self that continues throughout the life course…" [146]. Here, we can see how the gender role strain paradigm could be relevant for understanding the social pressures, particularly for young men who may be at an increased risk for gender role strain, impacting self-esteem and resulting in psychological distress. The findings that 1. there is poorer academic, occupational, and interpersonal functioning in men than in women before the diagnosis [147–149] and 2. that personal goals are reflected in men's delusional themes [150] also suggest a role for gender and thus SGBA in psychosis research, and again highlight the importance of gender-responsive psychological interventions.

5.5 Conclusion: SGBA Equals Better Science

In conclusion, this paper has outlined several important factors, summarized below, that emphasize the usefulness of an SGBA in enhancing schizophrenia research. Several of these factors, have led to recent international developments such as

WHO advocating SBGA, not only to improve health research, policy, and services but also to respond to gender-related health inequities as a matter of human rights [40, 151]:

1. Gender influences exposure to risk factors such as sexual violence, socioeconomic disadvantage, and low social rank, all of which have been linked to psychosis.
2. Research has demonstrated harmful psychological impacts of internalized gender role expectations on both men and women; however, this has not been explored in the psychosis field.
3. Research, qualitative studies in particular, has revealed how gender influences the impact of sexual abuse. Cultural beliefs about masculinity, femininity, and sexuality influence how female and male survivors make sense of their traumatic experience [8, 9, 123]. Obviously, this is a very important area to explore in individuals with a psychosis diagnosis in the light of research linking sexual abuse and psychosis and has implications for the need to develop gender-responsive, trauma-informed, and trauma-specific psychological interventions.
4. In addition to increasing understanding of the cognitive and psychological mechanisms that generate and maintain distressing psychotic experiences, an SBGA both implicates and satisfies the need to address social factors and injustices by extending analysis beyond intrapsychic distress at the individual level to the sociocultural level. As Connell [152], advocating a "relational gender analysis," explains: "The analysis needs to consider simultaneously the shape of the gender order and its historical transformations, the pattern of institutional and interpersonal relations, and the body-reflexive practices in which health consequences are produced" (p. 1679).
5. SGBA promotes a theoretical sophistication inherent in the overlapping constructs of *sex* and *gender*, where there are not always clear divisions for the biological, psychological, and sociocultural influences.

Greater sensitivity needs to be paid to sex and gender issues in all areas of health research. Failure to recognize this leads to bad science and avoidable mortality, morbidity, and disability [153], (p. 162).

This paper has illustrated that the same argument applies to schizophrenia research. SGBA in schizophrenia research is long overdue. Let's hope that it does not take another decade before we see a true integration of SGBA, improving the science of our field.

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