Vulnerability and Protective Factors for Mental Health: A Rereading in Gender Perspective

5

Anita Riecher-Rössler

Key Points

- Sex and gender are increasingly recognized as important factors influencing mental health, since both are associated with specific vulnerabilities, risk, and protective factors.
- As regards "sex" on the biological side, it is mainly the female sex hormone estradiol which seems to have various protective effects.
- Regarding "gender" on the psychosocial side, men and women seem to have different vulnerabilities and a different distribution of risk factors mainly due to "gender-typical" socialization and behavior, differing social roles and gender role stereotypes, but also due to factors like gender-based violence, abuse or discrimination.
- Taking these influences into account could, on the one hand, help to better understand the pathogenetic processes leading to mental disorders with marked gender differences in incidence and prevalence, such as depression or anxiety disorders.
- On the other hand, it could improve our diagnostic processes and therapies, making them more gender-sensitive in the sense of a more personalized medicine.

Sex and gender differences in mental disorders are among the most intriguing and stable findings in psychiatry. Differences have been shown regarding incidence and prevalence, symptomatology, or course in many disorders. But we still do not really understand the causes of these differences. Most likely, they are mainly

A. Riecher-Rössler (✉)
Center for Gender Research and Early Detection, University of Basel Psychiatric Hospital, Basel, Switzerland
e-mail: Anita.Riecher@upkbs.ch

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due to different vulnerabilities and a different distribution of risk and protective factors in women and men [1–6]. Evidence for this will be discussed in the following chapter.

5.1 Gender Differences in Incidence, Prevalence, and Age of Onset of Mental Disorders

All major epidemiological studies show gender differences in the incidence and prevalence of mental disorders [2, 3, 5, 6]. Women suffer much more frequently from eating disorders, depression, anxiety disorders, somatoform disorders, and also from borderline personality disorders. After a trauma women develop more often a posttraumatic stress disorder. Also, suicide *attempts* occur more often in women. Men, on the other hand, show more *completed* suicides, have higher rates of substance abuse, and most of the other personality disorders, especially antisocial ones. A large worldwide study, conducted on 72,933 participants in 15 countries of all continents, has shown this quite impressively (see Table 5.1) [5].

Table 5.1 Lifetime risk of mental disorders, odds ratios women/men (OR)

Mental disorder	Number of countries	All-country OR
Mood disorders	15	1.9
Major depressive disorder	10	1.9
Dysthymic disorder	6	0.9
Bipolar disorder	15	1.8
Any mood disorder		
Anxiety disorders	12	1.9
Panic disorder	15	1.7
Generalized anxiety disorder	8	2.0
Agoraphobia	13	1.3
Social phobia	12	2.0
Specific phobia	4	1.6
Separation anxiety disorder	14	2.6
Posttraumatic stress disorder	15	1.7
Any anxiety disorder		
Externalizing disorders	5	0.6
Attention-deficit/hyperactivity	3	0.5
disorder	6	0.7
Conduct disorder	3	0.8
Intermittent explosive disorder	12	0.7
Oppositional defiant disorder		
Any externalizing disorder		
Substance disorders	15	0.2
Alcohol abuse	11	0.3
Alcohol dependence	5	0.4
Drug abuse or dependence	14	0.3
Any substance disorder		
Any disorder	15	1.1

Adapted according to [5]

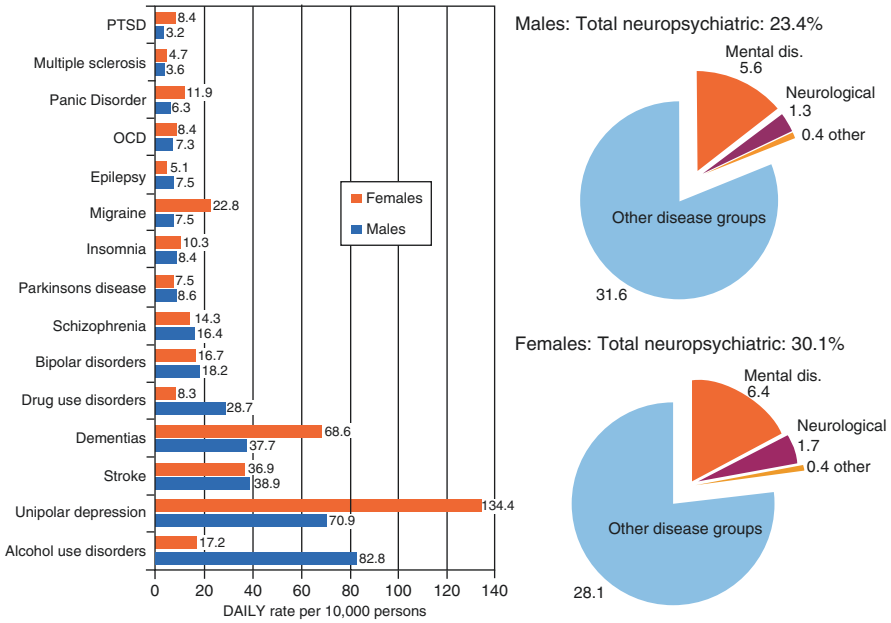

Fig. 5.1 Summary of DALY∗ estimates
∗Disability adjusted life years: number of years lost due to ill-health, disability, or early death. Reprinted from Wittchen HU et al. The size and burden of mental disorders and other disorders of the brain in Europe 2010. Eur Neuropsychopharmacol. 2011;21(9):655–79 [89]; Copyright (2011), with permission from Elsevier

And a meta-analysis including 174 surveys across 63 countries has recently confirmed this [6]. The consequences regarding ill-health, disability, and early death are shown in Fig. 5.1.

As regards schizophrenic psychoses, the cumulative lifetime risk seems to be roughly the same in both sexes if the upper age limit of the studies is 60 [7] or possibly slightly higher in men [8]. Most strikingly, they begin on average 4–5 years later in women than in men [9, 10], and women have a second peak of onset after age 40 with about 20% of all women having their first inpatient episode after age 40, but only 10% of all men [7, 11] (see Fig. 5.2).

5.2 Vulnerability, Risk, and Protective Factors Associated with Sex and Gender

Men and women on average have different vulnerabilities, risk, and stress factors that can influence not only the outbreak, but also the course of mental disorders and the treatment options. This involves biological as well as psychosocial factors.

Two caveats have to be made: First, there is a big overlap between women and men regarding these factors. Not all men are a "prototype man" and not all women

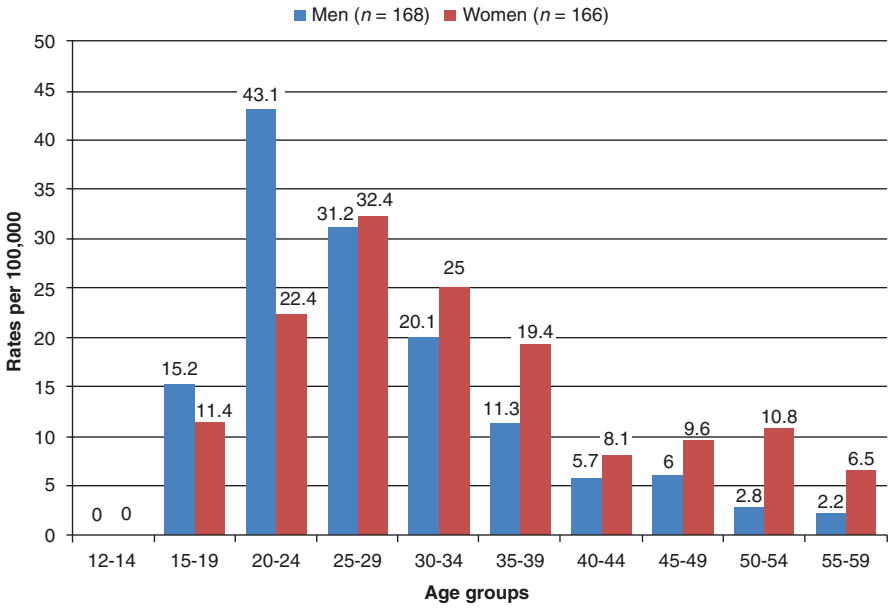

Fig. 5.2 Sex-specific age distribution at first admission for schizophrenia (ICD-9: 295). Source [9]

a "prototype woman." Second, it is difficult to disentangle biological from psychosocial or sociocultural influencing factors. Thus, e.g., human behavior which influences our mental well-being is influenced by biologically determined sex-specific traits, but also by sex-specific cultural stereotypes [12]. Furthermore, gender differences in life experiences might vice versa influence biological differences via epigenetics [13, 14].

5.2.1 Biological Factors

On the biological side, we do not only deal with genetic influences, which can arise from effects of sex chromosome genes [15] (not further discussed in this chapter), but also from hormonal influences on brain development, brain morphology, and brain functioning, showing neuro- and psychoprotective properties.

5.2.1.1 Sex Hormones

Estrogens and testosterone strongly affect brain development during gestation, in the early postnatal period, and around puberty [15–18]. The most active in the brain, 17-β-estradiol, promotes neuronal sprouting and myelination, enhances synaptic density and plasticity, facilitates neuronal connectivity, acts anti-inflammatory and as an antioxidant, inhibits neuronal cell death, and improves cerebral blood flow and glucose metabolism [16, 17, 19–22]; for review, see [10, 18].

Circulating estrogens modulate many neurotransmitter systems relevant to mental disorders, such as the dopaminergic, serotonergic, glutamatergic, noradrenergic, and cholinergic systems [18, 23–28]. Estrogen receptors are expressed in several areas of the human brain that are associated with emotion, memory, and cognition [18, 21, 29, 30].

Clinically, estrogens, especially 17-β-estradiol, seem to have antipsychotic properties [10, 31, 32], to improve affective symptoms [22, 32, 33], aggressive and suicidal behavior [22, 29, 34], and cognitive functioning [20, 30, 35–37], and have stress protective properties [38].

Several intervention studies with estrogens, especially with 17-β-estradiol, have shown positive results in women with schizophrenic psychoses [32, 39–42] or in women with peri-/postmenopausal depressive symptoms [43] or major depression [44–47]. It is therefore astonishing that depression is more frequent in women, because they should actually be protected by estrogens. The higher frequency might, however, be due to the fluctuation of estradiol levels during the female menstrual cycle as well as in the postpartum and perimenopause [18, 48–50]. Thus, estrogen withdrawal has been shown to have a destabilizing effect regarding depression on at least a subgroup of estrogen-sensitive vulnerable women [51, 52]. Perimenopause has been shown to be associated with an increase of depressive symptoms and disorders (overview [15, 44, 53]), although not without contradiction [53]. Women might also be more prone to anxiety, trauma, and stress-related disorders because of their greater monthly and lifespan fluctuations of sex hormones [54].

Also, schizophrenic psychoses more often occur or exacerbate in the premenstrual low estrogen phase of the cycle, with postpartum loss of high estradiol levels of pregnancy and with the perimenopausal loss of estrogens [10, 32, 42]. It has been suggested that estrogens via their antidopaminergic properties might protect women from the outbreak of psychosis during their fertile years, and they only fall ill when they lose this protective factor during menopause [10, 42]. This would not only explain women's later age of onset in schizophrenic psychoses, but also their second peak of incidence after menopause [10, 42].

5.2.2 Psychosocial Factors

Psychosocial risk factors seem to be even more important in explaining the gender gap in the incidence of mental disorders, especially regarding depression, since many well-known risk factors of depression are highly associated with the female gender (for review, see, e.g., [4, 55]).

5.2.2.1 Early Socialization and Coping Style

Gender-specific early socialization and upbringing are supposed to have a distinct impact on the later risk for a mental disorder, on coping strategies, help-seeking behavior, and the course of diseases. For example, it seems that girls tend to be educated more toward passivity, helplessness, and low self-esteem, whereas boys

are more encouraged to active coping. Possibly resulting from this, women tend to cope differently with conflicts and problems with more internalizing, ruminating, brooding, feelings of guilt, and depression. Men, on the other hand, are more likely to externalize and blame others for their problems, choose active and sometimes aggressive coping strategies, use addictive drugs or even commit suicide (overview in [4, 15, 55, 56]). Correspondingly, internalizing disorders are more common in women, externalizing more in men, as not only the worldwide WHO Survey [5], but also a recent large European population-based study has shown [2].

5.2.2.2 Social Status and Social Roles

The often different roles men and women still have in our societies, their different social status, and the differences in social stress and social support also seem to distinctly influence their mental health [57, 58].

Women often get less social recognition than men, partly because of their on average lower professional status. For the same work they earn on average less than their male counterparts. As a result, they are more likely to live below the poverty line, especially when they are single-parent mothers [59]. Both factors can impair their mental well-being.

Thus, women are often exposed to numerous stressors and a general overload due to multiple roles—for example, as a mother, wife, housekeeper, professional, carer for parents/in-laws, etc. Even more importantly, they often suffer considerable role conflicts as a result of all these partially competing roles. The social development in the last 50–100 years has given women an enormous increase in opportunities and additional social roles. They now can and should become professionals. At the same time, many women and men were still educated with and exposed to very traditional gender role stereotypes, in which mainly the woman is held responsible for home, hearth, children, well-being of the husband, family, etc. Especially young mothers, when they do not critically reflect these traditional gender roles, may take on a role that does not correspond to their actual desires and needs—such as abandoning their career aspirations or even their entire professional activity—which ultimately may lead to internal conflicts and mental ill-health. Thus, the fact that women suffer from depressive disorders more than men may well be due to the different social roles of the sexes. This conclusion can, e.g., be drawn from a study within the WHO Mental Health Survey with 72,933 respondents in 15 countries of all continents. It revealed gender differences in the depression rate in all countries. In countries, however, where traditional gender roles were dissolving, these differences decreased in the younger age-cohorts [5].

5.2.2.3 Dependency, Harassment, and Violence

Women's lives are often marked by strong dependencies, be it in their partnerships or in the workplace. Furthermore, women, more often than men, experience different forms of gender-based, esp. domestic and partner violence [60–62], which may be another reason for an increased prevalence of depression, posttraumatic stress and anxiety disorders, and suicidality [62–65].

In Europe 20% of all women aged over 15 years have been physically or sexually abused by their (ex)partners [60]. The devastating psychological consequences of

sexual abuse and sexual violence are well known [66–68]. A topic still more taboo is women's abuse in the therapeutic relationship [69–71].

Other forms of violence against women influencing their health are human trafficking, female genital mutilation, forced and early marriage, and "honor" crimes [62, 72].

In migrant families, young girls and women are often subjected to a "clash of cultures" between the traditional upbringing and gender role on the one hand and modern western role ideals on the other, which can drive them to attempt suicide [73, 74].

Another important area is gender-based harassment in the workplace [75, 76], which implies not only sexual harassment, but also disadvantages due to rejection of sexual advances or simply gender-based discrimination. For women, this can lead to heavy inner conflicts, fears, and depression.

In the context of mental illness, also the occupation with the body and with beauty is gaining in importance, particularly in women. Modern media suggest ideals that in vulnerable girls and women can lead to bizarre eating habits and eating disorders or to cosmetic surgery, which sometimes is followed by complications and has psychological consequences [55, 77–80].

5.3 Gender Roles and Illness Behavior

On average, women tend to show a better emotional expressiveness than men, report symptoms more willingly, seek help earlier, and demonstrate better compliance (overview in [4, 28, 59]). In contrast, men are often reluctant to seek help due to a traditional "hegemonic" self-concept of masculinity (reviews [81–83]). This does not only apply to mental, but also to physical problems or, e.g., early detection and prevention programs for cancer [84].

The higher rate of completed suicides in men in contrast to the higher rate of suicide attempts in women not only seems to be due to men's worse help-seeking behavior and their negative attitude toward antidepressive therapy, but also to the fact that men choose more aggressive, lethal methods for suicide (reviews [85, 86]).

5.4 Conclusions

Although there is a big overlap between men and women, their mental health is influenced by different vulnerabilities, risk and protective factors. Unfortunately, research so far has often ignored these differences [87]. This is all the more regrettable because it might hamper the detection of potentially differing causal pathways and treatment responses in both women and men and result in a failure to deliver optimal personalized, gender-sensitive treatment. Further research, education, and practice should much more integrate sex and gender aspects. At the same time prevention in the field of mental health should be taken more seriously.

This should include more gender-sensitive prevention programs allowing, e.g., men with traditional ideals of masculinity nevertheless to seek help. And it should also include medical professionals to engage for more gender equality in order to reduce risk factors for mental disorders, as recently proposed by a European Parliament Report [88].

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