Sex differences in beliefs and attitudes towards mental illness: An examination of mental health literacy in a community sample

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Objectives: The current study investigated mental health literacy in an Australian sample to examine the influence sex has in the identification of and attitudes towards various aspects of mental illness.

Method: An online questionnaire was completed by 373 participants (267 female, $M =$ 34.87). Participants were randomly assigned a vignette depicting an individual exhibiting the symptoms of one of three types of mental illness and asked to answer questions relating to aspects of mental health literacy.

Results: Males exhibited poorer mental health literacy skills compared to females. Males were less likely to correctly identify the type of mental illness, more likely to rate symptoms as less serious and to perceive the individual as having greater personal control over such symptoms.

Conclusion: Generally, the sample was relatively proficient at correctly identifying mental illness but overall males displayed poorer mental health literacy skills than females.

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Introduction

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23   Mental illness is a predominant issue in public health, contributing to substantial economic and

24   emotional community burden. It is estimated that up to 45% of the Australian population will

25   experience mental illness at some point during their lifetime (Australian Bureau of Statistics [ABS],

26   2009). However, not all individuals who experience symptoms of mental illness receive the same level

27   of care or treatment. This is partly attributable to the general public's beliefs and attitudes surrounding

28   mental illness, often referred to as their mental health literacy (e.g., Jorm, Barney et al., 2006).

29   The term mental health literacy was first introduced in a study by Jorm et al. (1997) investigating

30   public beliefs about the causes and risk factors for depression and schizophrenia. Jorm et al. (1997, p.

31   143) described a person's mental health literacy as his or her "knowledge and beliefs about mental

32   disorders that aid the recognition, management or prevention of these disorders." According to Jorm et

33   al. (1997), mental health literacy includes: (a) the ability to recognize and differentiate various types of

34   mental illness and disorders; (b) knowledge of how and where to seek information about risk factors,

35   intervention strategies, and professional help; and (c) attitudes and beliefs that influence a person's

36   ability to identify mental illness and seek appropriate help. Furthermore, an individual's mental health

37   literacy can be influenced by a multitude of factors, including age, remoteness of residency, education,

38   socioeconomic status, and personal experience with mental healthcare (Dahlberg, Waern & Runeson,

39   2008; Farrer, Leach, Griffiths, Christensen & Jorm, 2008; Griffiths, Christensen & Jorm, 2009; Kaneko

40   & Motohashi, 2007).

41   Studies have shown that the general public historically exhibit poor mental health literacy

42   towards various aspects of mental illnesses (Goldney, Fisher & Wilson, 2001; Jorm et al., 1997; Jorm,

43   Christensen & Griffiths, 2005). For instance, Jorm et al. (1997) revealed that only 39% of Australian

44   respondents could accurately recognize symptoms of depression. The beliefs and attitudes of the

45   general public has been shown to be frequently discordant with those held by mental health

46   professionals, with the public frequently viewing medication, hospitalisation, and psychiatric treatment

47   as harmful (Goldney et al., 2001; Jorm et al., 1997). Interestingly, according to Andrews (1999, p.

48   317), both mental health "patients and the media do not distinguish between the non-specific help from

49   counsellors and the specific treatment to be expected from mental health professionals". This inability

50   to discriminate between the types of services offered lends further weight to the research suggesting

51   that the general public's mental health literacy is still largely lacking (Goldney et al., 2001; Jorm et al.,

52   2005; Jorm & Kelly, 2007). In addition, various stereotypes regarding mentally ill individuals have

53   been shown to be held by the general public. Some common stereotypes include that mentally ill

54   persons are dangerous, dirty, unpredictable, and worthless (e.g., Angermeyer & Dietrich, 2006;

55   Corrigan, Kuwabara & O'Shaughnessy, 2009; Schnittker, 2008). An individual's mental health

56   literacy, including his or her beliefs and attitudes towards mental illness, may influence or contribute to

57   the formulation of 'lay appraisals'.

58   Evidence suggests that long before an individual sees a mental health professional, 'lay

59   appraisals' or 'lay diagnoses' are made by individuals, family members, friends, and co-workers

60   regarding the early signs of mental illness (Hollingshead, 2007). Lay appraisals are frequently

61   responsible for determining how and when an individual receives treatment for his or her mental illness

62   (Greenley & Mechanic, 1987; Pescosolido, Gardner & Lubell, 1998). As a result, a large portion of

63   people remain undiagnosed and untreated (Kessler et al., 1994; Shapiro, Skinner & Kessler, 1984). A

64   study by Link, Phelan, Bresnahan, Stueve and Pescosolido (1999) showed that many symptoms and

65   disorders are not accurately identified by the public as being a mental illness. However, in 2011,

66   Reavley and Jorm re-administered a national survey, originally distributed in 1995 and again in 2003-

67   2004, in order to identify changes in the mental health literacy of the Australian general public. The

68   results indicated that while there was an overall improvement in mental health literacy, with the public

69   more ably recognizing depression, more positively rating a range of interventions, and holding beliefs

70   and attitudes more consistent with those of mental health professionals, gains still need to be made with

71   respect to schizophrenia and anxiety disorders which are still under-recognised.

72   Some findings suggest that sex differences exist when it comes to public attitudes and beliefs

73   towards mental illness (e.g., Angermeyer, Matschinger & Holzinger, 1998; Cotton, Wright, Harris,

74   Jorm & McGorry, 2006; Holzinger, Floris, Schomerus, Carta & Angermeyer, 2012; Jorm et al., 1997);

75   females being seen at a greater risk of developing depression than males. Cotton et al. (2006)

76   investigated mental health literacy in young Australians between 12 and 25 years of age. They also

77   revealed that male youths exhibited significantly worse recognition of depressive symptoms than

78   female youths, with 61% of females able to correctly identify depression compared to 35% of males.

79   Furthermore, male youths were less likely than female youths to view seeing a psychologist or

80   counsellor as an appropriate treatment for psychosis.

81   These studies provide evidence that some sex differences in the mental health literacy of the

82   general public exists. However, it is unknown to what extent such differences currently exists in the

83   Australian general adult population. Expanding our knowledge of sex differences in public awareness

84   of mental illness could help to identify particular areas of mental health literacy in need of

85   improvement specific to each sex. High mental health literacy, including the ability to accurately

86   identify mental illness, may play a pivotal role in help-seeking behaviors and potentially decrease an

87   individual's vulnerability to suicide. Additionally, the identification of such sex disparities in mental

88   health literacy would help to facilitate and guide education programs about mental health, as well as

89   tailor specific individual psycho-education unique to each client.

90   One of the aims of this study was to build upon the current findings associated with mental health

91   literacy by investigating further the influence that sex has regarding the identification of, and attitudes

92   towards, various aspects of the three major types of mental illness in Australia (i.e., depression,

93   anxiety, and psychosis). As such, the hypotheses proposed to be explored by the present research are as

94   follows: (a) the general public's mental health literacy are likely to differ significantly for depression,

95   anxiety, and psychosis, (b) various aspects of the general public's mental health literacy toward

96   depression, anxiety, and psychosis are likely to differ significantly between males and females, and (c)

97   the sex of the individual expressing symptoms of depression, anxiety, and psychosis is likely to

98   influence various aspects of the general public's mental health literacy.

Materials & Methods

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100   **Participants**

101   The participants consisted of 381 respondents of varying age, sex, and socio-demographic

102   backgrounds. Eight participants discontinued the questionnaire before completing all of the initial

103   socio-demographic background section and were excluded. The final sample of individuals who

104   participated in this study consisted of 373 participants between the ages of 18 and 84 ($M = 34.87$, $SD =$

105   12.46) with 28% ($n = 106$) of participants being male ($M = 35.95$, $SD = 12.72$), compared to 72% ($n =$

106   267) being female ($M = 34.44$, $SD = 12.36$).

107   Participants were recruited via invitation email through various mailing lists and via messages

108   posted on various social networking sites such as Facebook and Twitter, and by word of mouth. The

109   study was approved by the University of New England's Human Research Ethics Committee

110   (HE11/022).

111   **Materials and Procedures**

112   After reading the online information sheet and consenting to participate in the study, participants

113   completed demographic questions relating to their age, sex, schooling, locality (rural or urban),

114   income, and occupation. Following these, participants read a vignette (random allocation to one of

115   three vignettes) designed to emulate one of the three most common types of symptoms associated with

116   mental illness (i.e., depression, anxiety, and psychosis). Each vignette described an individual who was

117   experiencing symptoms of mental illness at a clinically significant level in which some form of

118   intervention would be recommended as per the criteria stipulated in the *Diagnostic and Statistical*

119   *Manual of Mental Disorders 5* (*DSM-V*; American Psychiatric Association [APA], 2013). The

120   depression and psychosis vignettes were adapted from the depression and schizophrenia vignettes used

121   by Jorm et al. (1997).

122   The names 'John' and 'Jane' were chosen for use in the vignettes due to the fact that they are

123   common Australian names with no cultural association to any minority groups. The age of the

124   protagonist was kept consistent at 30 years of age in order to avoid the potential confound of

125   developmental and psychosocial difficulties that often occur in childhood and adolescence as well as to

126   avoid age-specific neurological and physical conditions often present in older adults.

127   Participants were then asked a series of questions which were created to ascertain various aspects

128   of their mental health literacy regarding the mental illness depicted in the vignette (i.e., "In five words

129   or less, what would you say, if anything, is wrong with the individual in the vignette?"). Additional

130   questions were designed to ascertain the participants' perceptions of the seriousness of the symptoms

131   described in the vignette (e.g., "To what extent would you rate the problems of the individual in the

132   story as being serious?"), and the perceived level of control that the participants believed the individual

133   in the vignette has over the symptoms described (i.e., "To what extent are the problems of the

134   individual in the story within his or her control?").

135   The final questions related to participants' sex perceptions regarding mental illness (e.g., "Which

136   group of people would you consider to be most likely to experience problems similar to those of the

137   individual in the story?").

138   The following overall guidelines were established for the purposes of providing consistency and

139   accuracy in distinguishing between correct and incorrect responses: (a) the use of the general category

140   of mental illness (i.e., depression, anxiety, and psychosis), or a derivative of the word (e.g., depressive,

141   depressed, anxious, or psychotic) was regarded as a correct response; (b) the use of the exact *DSM-V*

142   diagnostic criteria, or subtype there of (e.g., major depression, dysthymia, generalised anxiety disorder,

143   or paranoid schizophrenia) was also regarded as a correct response; (c) references to symptoms of a

144   mental illness rather than the illness itself were not regarded as correct responses; (d) the term

145   "stressed" was not accepted as a correct identification of anxiety on the basis that it is frequently used

146   as a colloquial term that can encompass a broad range of symptoms, some of which are often not

147   associated with anxiety. Similarly, the terms "paranoid" and "delusional" were not accepted as correct

148   identification of psychosis as they may also be used in colloquial contexts, and refer to the symptoms

149   of schizophrenia rather than the illness itself; (e) misspelt words or phrases were accepted as correct

150   providing it was discernible as to what mental illness was intended; and (f) accurate responses were

151   maintained as correct regardless of additional information or diagnoses that were provided beyond that

152   of the correct diagnosis, as the participant demonstrated the ability to identify the mental illness in

153   question.

154   **Results**

155   **Identification of Mental Illness**

156   There was a strong association between correct identification and type of mental illness, $\chi^2(2, N =$

157   $373) = 52.11$, $p < .001$, $\phi = .37$, with 86% of participants correctly identifying depression, 57% of

158   participants correctly identifying anxiety, and 42% correctly identifying schizophrenia. There was also

159   a weak but statistically significant association between correct identification and sex, $\chi^2(1, N = 373) =$

160   4.70, $p = .03$, $\phi = -.11$, with 52% of male and 64% of female participants correctly identifying the

161   mental illness. There was only a weak association between correct identification and protagonist sex,

162   $\chi^2(1, N = 373) = 0.33$, $p = .056$, $\phi = .03$, with 62% of male and 59% of female protagonist mental

163   illness correctly identified.

164 **Main Analyses**

165   Four three-way between groups ANOVAs, type of illness by sex by protagonist sex, were

166 conducted for perceived seriousness, need for treatment, risk of self-harm, and personal control, see

167 Table 1. The means and standard deviations are reported in Table 2 along with any post hoc analysis of

168 main effects.

169   The interaction effect between *mental illness* and *participant sex* was significant for *need for*

170 *treatment*, indicating that the effect that participant sex has on the perceived need for treatment for

171 mental illness is dependent on the type of mental illness, see Figure 1. Analysis of simple effects was

172 conducted using separate one-way between groups ANOVAs to determine the independent effects of

173 participant sex and type of mental illness. For depression there was no significant difference between

174 participant sex, $F(1, 117) = 0.21$, $p = .65$, partial $\eta^2 < .01$. For anxiety there was a significant difference

175 between participant sex, $F(1, 122) = 11.80$, $p = .001$, partial $\eta^2 = .09$, with females ($M = 4.89$, $SD =$

176 1.17) perceiving a higher need for treatment than males ($M = 4.09$, $SD = 1.14$). For psychosis there was

177 a significant difference between participant sex, $F(1, 128) = 13.84$, $p < .001$, partial $\eta^2 = .10$, with

178 females ($M = 6.27$, $SD = 0.79$) perceiving a higher need for treatment than males ($M = 5.64$, $SD =$

179 1.02).

180   There was a significant interaction between participant and protagonist sex for *personal control*,

181 see Table 1, indicating that the effect that participant sex has on perceived level of control over mental

182 illness is dependent on the type of protagonist sex. Analysis of simple effects was conducted using

183 separate one-way between groups ANOVAs to determine the effects of participant and protagonist sex.

184 For males there was no significant difference between protagonist sex, $F(1, 104) = 3.05$, $p = .08$, partial

185 $\eta^2 = .03$. For females there was no significant difference between the protagonist sex, $F(1, 265) = 0.74$,

186 $p = .39$, partial $\eta^2 < .01$. For male protagonists there was no significant difference between participant

187 sex, $F(1, 180) = 0.23$, $p = .64$, partial $\eta^2 < .01$. For female protagonists there was a significant

188   difference between participant sex, $F(1, 189) = 10.77$, $p = .001$, partial $\eta^2 = .05$, with male participants

189   rating a higher level of perceived control than females, see Figure 2.

Sex Susceptibility

191   Three chi-square tests were performed to test if there was a relationship between perceived sex

192   susceptibility and the type of mental illness, participant sex, and protagonist sex. There was a

193   significant association between perceived sex susceptibility and type of mental illness, $\chi^2(4, N = 373) =$

194   22.48, $p < .001$, $\phi = .25$. From the participants who received the depression vignette, 13.8% indicated

195   that males are more susceptible, 15% indicated that females are more susceptible, and 72% indicated

196   that males and females are equally susceptible. From the participants who received the anxiety

197   vignette, 13% indicated that males are more susceptible, 23% indicated that females are more

198   susceptible, and 63% indicated that males and females are equally susceptible. From the participants

199   who received the psychosis vignette, 28% indicated that males are more susceptible, 6% indicated that

200   females are more susceptible, and 66% indicated that males and females are equally susceptible, see

201   Figure 3.

202   There was a significant association between perceived sex susceptibility and participant sex, $\chi^2(2,$

203   $N = 373) = 11.00$, $p = .004$, $\phi = .17$. From the male participants, 29% indicated that males are more

204   susceptible, 9% indicated that females are more susceptible, and 62% indicated that males and females

205   are equally susceptible. From the female participants, 15% indicated that males are more susceptible,

206   17% indicated that females are more susceptible, and 68% indicated that males and females are equally

207   susceptible, see Figure 4. There was a significant association between perceived sex susceptibility and

208   protagonist sex, $\chi^2(2, N = 373) = 35.70$, $p < .001$, $\phi = .31$. From the participants who received a male

209   protagonist vignette, 29% indicated that males are more susceptible, 6% indicated that females are

210   more susceptible, and 65% indicated that males and females are equally susceptible. From the

211   participants who received a female protagonist vignette, 9% indicated that males are more susceptible,

212   22% indicated that females are more susceptible, and 69% indicated that males and females are equally

213   susceptible, see Figure 5.

214   **Discussion**

215   This study explored whether the mental health literacy of members of the general public was

216   influenced by (a) the type of mental illness, (b) the sex of the individual experiencing the symptoms of

217   mental illness, and (c) the sex of the individual identifying and appraising the mental illness.

218   Participants read a vignette describing either a male or female experiencing clinically significant

219   symptoms of depression, anxiety, or psychosis. Participants were then asked a number of questions in

220   order to assess various aspects of their mental health literacy. The results were consistent with the

221   hypothesis that some aspects of mental health literacy are influenced by the type of mental illness, sex

222   of the participant, and sex of the protagonist.

223   As hypothesized, the type of mental illness directly influenced participants' abilities to accurately

224   identify the presenting symptoms, with depression resulting as the most readily identifiable mental

225   illness (85.7%), followed by anxiety (56.5%), and then psychosis (41.5%). These findings suggest that

226   the general public is relatively good at identifying symptoms of depression, but find it significantly

227   more difficult to identify anxiety and psychosis. This is consistent with previous research that has

228   shown depression to be more readily identifiable by the general public than psychosis (e.g., Jorm et al.,

229   1997). A number of factors may contribute to the increased recognition of depression over anxiety and

230   psychosis. First, a greater prevalence of depression and anxiety in Australia compared to psychosis

231   may result in members of the general public having greater exposure and experience with such mental

232   illnesses. Second, the term *depression* is more readily used in the Australian vernacular and is

233   associated with fewer and milder social stigmas. Finally, compared to depression and anxiety, which

234   refer to broad categories of psychological symptoms, psychosis refers to a more specific set of

235   psychological symptoms outlined in the *DSM-V*, subsequently making it more difficult to accurately

236   identify (APA, 2013; ABS, 2009).

237   Across the measures of level of seriousness, participants showed the greatest level of concern

238   towards individuals with psychosis, followed by depression, and anxiety. This is in line with evidence

239   that has shown that psychosis and depression are associated with increased levels of morbidity and

240   mortality compared to the general population, in particular, relating to serious cardiovascular events

241   (Casey et al., 2004; Musselman, Evans & Nemeroff, 1998; Wulsin, Vaillant & Wells, 1999). Similarly,

242   psychosis and depression are associated with increased levels of suicide attempts compared to the

243   general population. In fact, suicide is the leading cause of premature death among individuals with

244   schizophrenia (Fenton, 2010). These findings suggest that the general public have accurate perceptions

245   of the seriousness of mental illnesses and support the finding by Jorm et al. (2006) which identified a

246   growing trend of improved mental health literacy of the general public over the past decade. The

247   current study appears to support this contention of increased improvement.

248   As hypothesized, a significant difference existed between each participant sex and their

249   respective ability to accurately identify the presenting symptoms, with 64% of females able to correctly

250   identify the mental illness provided compared to 52% of males. Across the measures of level of

251   seriousness, females displayed an overall tendency to perceive the symptoms of mental illness as more

252   serious compared to males.

253   These findings are congruent with previous studies suggesting that when compared with females,

254   males display a poorer ability to correctly identify mental illness as well as more restrictive attitudes

255   towards the various aspects of mental illness (Cotton et al., 2006; Kaneko & Motohashi, 2007). One

256   possible explanation for these findings is that females may be inherently more psychologically minded,

257   introspective, and emotionally aware, thus increasing the likelihood that they would (a) engage in

258   conversations relating to emotional and psychological difficulties, (b) have contact or interactions with

259   individuals who have a mental illness, and/or (c) participate in studies relating to mental health literacy

260   (Petrides, Furnham & Martin, 2004).

261   Finally, as hypothesized, the sex of the protagonist presented in the vignette provided had an

262   influence on a number of aspects of mental health literacy including the perceived level of seriousness,

263   degree of personal control, and sex susceptibility. Individuals who received a male protagonist vignette

264   displayed a tendency to report marginally higher levels of perceived seriousness compared to

265   individuals who read about a female protagonist. Furthermore, of the individuals provided with a male

266   protagonist vignette, 29% indicated that males were more likely to be susceptible to mental illness

267   compared to 6% of individuals who indicated that females were more likely. Conversely, when

268   presented with a female protagonist vignette the opposite trend was observed, with 22% indicating that

269   females were more likely to be susceptible to mental illness compared to 9% of individuals who

270   indicate that males were more likely.

271   Further findings indicated that when provided with a female protagonist vignette, males

272   displayed a tendency to perceive a higher level of personal control over mental illness than females.

273   However, when provided with a male protagonist vignette no sex differences were observed. These

274   results are consistent with, and build upon, preliminary evidence obtained by Jorm et al. (1997) by

275   suggesting that protagonist sex may influence mental health literacy not only through self-reported

276   beliefs, but also as a result of innate perceptions regarding mental illness.

277   **Limitations**

278   Similar to other research conducted regarding mental health literacy, this research adopted the

279   use of a brief written vignette. The use of such a vignette presents two distinct complications. First, it is

280   uncertain whether a written description of symptoms of mental illness elicits the same attitudes and

281   perceptions as obtaining the same information from face-to-face observations and verbal

282   communication. It is likely that overt body language and non-verbal communication (i.e., facial

283   expressions, eye contact, tone of voice) would provide additional information from which to identify

284   and evaluate an individual's symptoms of mental illness.

285   Second, it is unknown whether the level of concern expressed towards a vignette of mental

286   illness is comparable or equivalent to that expressed towards a real person and whether there are any

287   differences in the subsequent therapeutic actions taken from such concern (i.e., help seeking behavior).

288   Some research has shown that a discrepancy exists between what behaviors, interventions, and

289   professionals an individual believes are helpful and what therapeutic actions he or she actually employs

290   (Jorm et al., 2000). Similarly, differences are also demonstrated between what an individual believes

291   will help another person and what actions they would take for themselves (Raviv, Sills, Raviv &

292   Wilansky, 2000).

293   About 72% of the participants in the present study were females. This is consistent with other

294   research on mental health literacy that has shown males are less likely than females to participate in

295   studies relating to mental health literacy (e.g., Burns & Rapee, 2006; Jorm et al, 1997; Link et al.,

296   1999). Such a discrepancy may have potentially created an overrepresentation of female beliefs and

297   attitudes when performing comparisons based on the entire sample. However, there were no

298   statistically significant sex related interactions except for need for treatment.

299   The vignettes employed in this study depicted three different mental illnesses clearly

300   distinguishable from each other through the absence of overlapping symptoms or comorbid diagnoses

301   involving substance abuse, medical conditions, trauma, personality disorders, or intellectual

302   difficulties. Comorbidity among mental illness is extremely high and would inevitably have a large

303   impact on an individual's ability to accurately identify and evaluate mental illness. As such, the

304   findings from this study may not be extrapolated to apply to common situations whereby comorbidity

305   is present (Kessler et al., 2005). Similarly, the vignettes utilized in this study described the protagonists

306   as being 30 years of age in order to maintain consistency. Unique age-related difficulties in younger

307   (e.g., puberty) and older populations (e.g., cognitive decline) may potentially complicate the

308   identification of mental illness (Bartels, 2004; Pottick, Hansell, Gutterman & Raskin-White, 1995).

309   Future research on mental health literacy may consider several issues: (a) considering whether

310   the trends displayed using vignettes are comparable to 'real life' symptoms (b) the extent to which

311   expressed concerns towards mental illness equate to therapeutic action (c) the influence of comorbidity

312   towards mental health literacy (d) the influence of the age of the protagonist, (e) the effect of utilizing a

313   vignette describing sub-clinical everyday problems as a comparison, (f) exploration of the possible

314   reasons behind participants' mental health literacy, and (g) examining comparisons between the mental

315   health literacy of youths, adolescents, and adults.

316   **Conclusions**

317   The findings from this study suggest that the Australian general public is relatively proficient at

318   correctly identifying mental illness, in particular symptoms of depression. The general public also

319   displayed relatively accurate perceptions of the severity and seriousness of symptoms of depression,

320   anxiety, and psychosis. Males exhibited poorer mental health literacy skills than females, with males

321   being less likely to correctly identify the type of mental illness, displaying a tendency to rate symptoms

322   as being less serious, and perceiving greater personal control over mental illness. These findings help

323   to identify numerous areas of public mental health literacy that may be improved in the Australian

324   general public, namely education programs targeted towards increasing awareness of mental illness in

325   the male population.

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Table 1(on next page)

Between Groups ANOVAs for the Effects of Illness, Gender, and Protagonist Gender on Perceived Seriousness, Need for Treatment, Risk of Self-harm, and Personal Control

2 Table 1

3 *Between Groups ANOVAs for the Effects of Illness, Sex, and Protagonist Sex on Perceived Seriousness,*

4 *Need for Treatment, Risk of Self-harm, and Personal Control*

Measures	Perceived Seriousness		Need for Treatment		Risk of Self-harm		Personal Control	
	F	Partial η^2	F	Partial η^2	F	Partial η^2	F	Partial η^2
Illness type (I)	69.74***	.28	49.81***	.22	41.18***	.19	20.50***	.10
Sex (S)	6.19*	.02	18.29***	.05	3.12	.01	7.01**	.02
Protagonist sex (PS)	4.73*	.01	1.04	<.01	1.95	.01	0.79	<.01
I × S	2.01	.01	3.11*	.02	0.98	.01	0.36	<.01
I × PS	0.02	<.01	0.16	<.01	1.33	.01	0.30	<.01
S × PS	2.22	.01	0.006	<.01	1.78	.01	4.70*	.01
I × S × PS	0.76	<.01	0.44	<.01	1.76	.01	1.42	.01

5 *Note. *p < .05, ***p < .01, ****p < .001

6

Table 2(on next page)

Means and Standard Deviations for Condition, Gender of participants and protagonist by the Perceived Seriousness, Need for Treatment, Risk of Self-Harm, and Personal Control

2   Table 2

3   *Means and Standard Deviations for Condition, Sex of Participants and Protagonist by Perceived*

4   *Seriousness, Need for Treatment, Risk of Self-harm, and Personal Control*

Measure	Perceived Seriousness	Need for Treatment	Risk of Self-harm	Personal Control
Illness				
Depression	5.57 (1.04) $_a$	5.13 (1.10) $_a$	4.53 (1.42) $_a$	3.81 (1.37) $_a$
Anxiety	4.87 (1.18) $_b$	4.67 (1.21) $_b$	3.82 (1.42) $_b$	4.04 (1.48) $_a$
Psychosis	6.46 (0.75) $_c$	6.09 (0.90) $_c$	5.58 (1.21) $_c$	2.86 (1.56) $_b$
Participant				
Male	5.46 (1.30) $_a$	4.94 (1.26) $_a$	4.47 (1.53) $_a$	3.87 (1.49) $_a$
Female	5.72 (1.14) $_b$	5.46 (1.19) $_b$	4.73 (1.53) $_a$	3.43 (1.57) $_b$
Protagonist				
Male	5.74 (1.20) $_a$	5.36 (1.21) $_a$	4.73 (1.53) $_a$	3.56 (1.64) $_a$
Female	5.57 (1.19) $_b$	5.26 (1.25) $_a$	4.60 (1.54) $_a$	3.55 (1.48) $_a$

5   *Note.* Values within variables in columns that share a subscript are not different by alpha criterion of .05 (Sidak adjusted).

Figure 1(on next page)

Image of need for treatment expressed by male and female participants towards the three types of mental illness.

Need for treatment expressed by male and female participants towards the three types of mental illness.
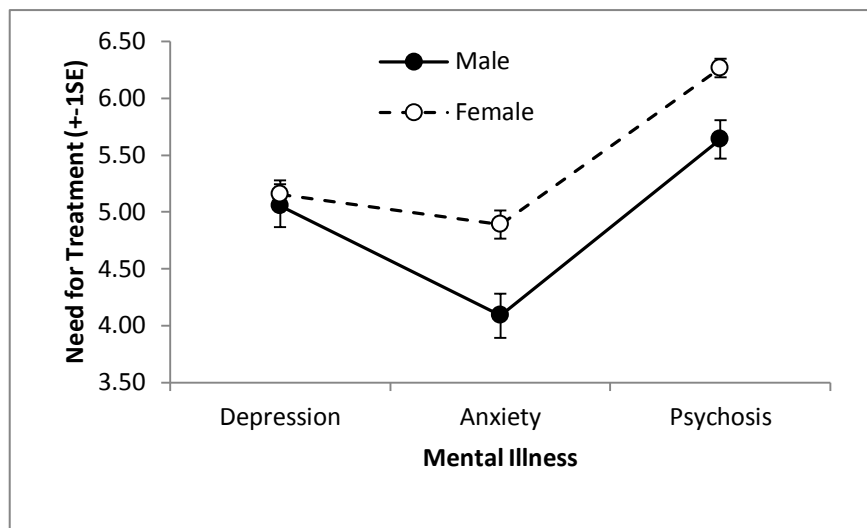
Figure 1. Need for treatment expressed by male and female participants towards the three types of mental illness.

Figure 2(on next page)

Image of perceived level of personal control over mental illness for each protagonist gender as rated by each participant gender.

Perceived level of personal control over mental illness for each protagonist gender as rated by each participant gender.

Figure 2. Perceived level of personal control over mental illness for each protagonist gender as rated by each participant gender.

Figure 3(on next page)

Image of number of participants who indicated each gender as being more susceptible to depression, anxiety, and psychosis.

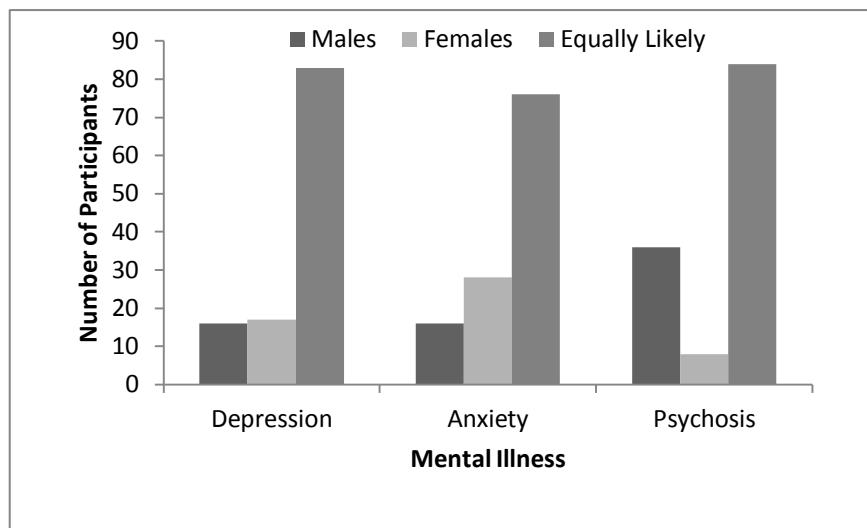Number of participants who indicated each gender as being more susceptible to depression, anxiety, and psychosis.

Figure 3. Number of participants who indicated each gender as being more susceptible to depression, anxiety, and psychosis.

Figure 4(on next page)

Image of number of male and female participants who indicated each gender as being more susceptible to mental illness.

Number of male and female participants who indicated each gender as being more susceptible to mental illness.
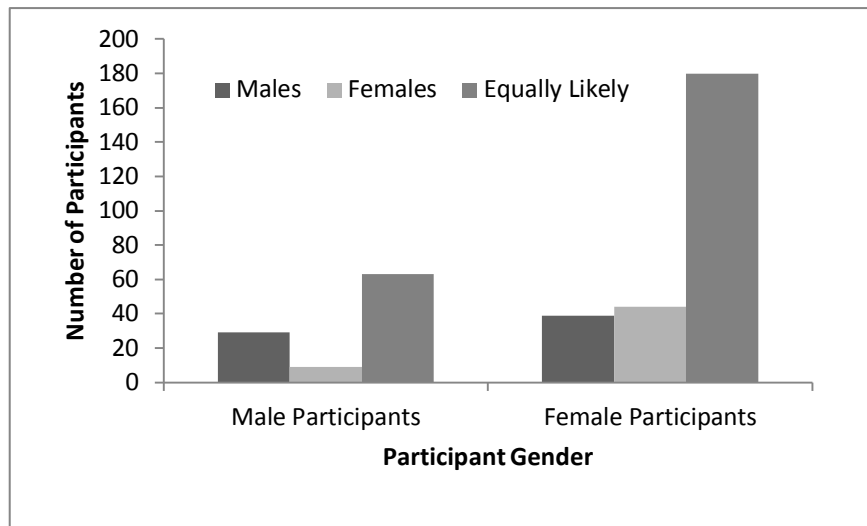
Figure 4. Number of male and female participants who indicated each gender as being more susceptible to mental illness.

Figure 5(on next page)

Image of number of participants for each protagonist gender who indicated each gender as being more susceptible to mental illness.

Number of participants for each protagonist gender who indicated each gender as being more susceptible to mental illness.
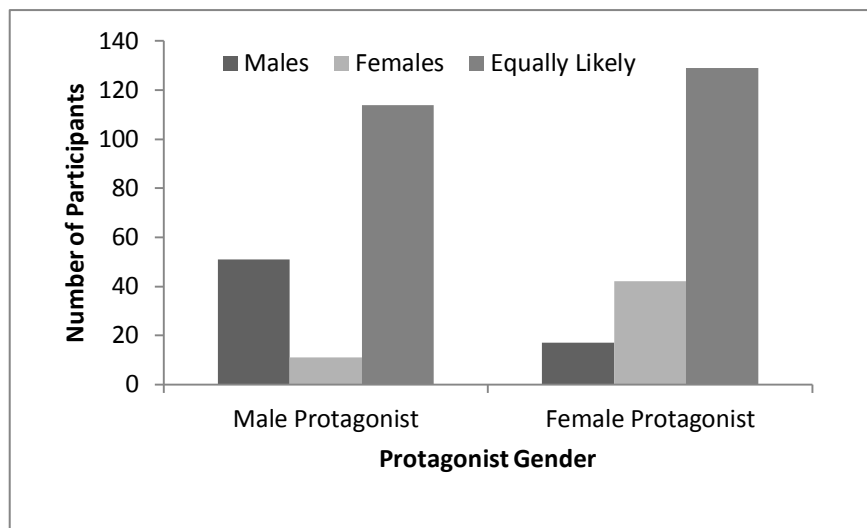
Figure 5. Number of participants for each protagonist gender who indicated each gender as being more susceptible to mental illness.