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Gender Differences in Symptoms, Functioning and Social Support in Patients at Ultra-High Risk for Developing a Psychotic Disorder

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Abstract

Gender differences have been widely observed in the clinical presentation, psychosocial functioning and course of illness in first episode and chronic patients suffering from schizophrenia. However, little is known about gender differences in the psychosis prodrome. This study investigated gender differences in symptoms, functioning and social support in individuals at ultra-high-risk for developing a psychotic disorder. Sixty-eight ultra-high-risk patients were assessed at baseline, and twenty-seven returned for follow-up assessments approximately six and twelve months later. Clinical symptoms and functioning were assessed by clinical interview; social support was measured using a self-report questionnaire. There were no gender differences in demographic variables, symptoms or functioning at baseline. Males were found to have significantly higher levels of negative symptoms and marginally lower levels of functioning when baseline and follow-up time points were considered collectively. Additionally, females reported higher levels of social support at baseline. Differences in negative symptoms were found to mediate differences in functioning between male and female patients. This study suggests that gender based differences in symptom presentation and functional outcome may predate conversion to psychosis. Follow-up studies should examine the relationship between symptoms, functioning and social support in this population.

Keywords

Prodrome; Gender; Negative Symptoms; Social Support; Functional Outcome; Psychosis; Schizophrenia

1. Introduction

Studies have consistently shown there are gender differences in age of onset, severity of negative symptoms, long-term functioning and social support for patients with schizophrenia (Angermeyer, Kühn, & Goldstein, 1990; Bardenstein & McGlashan, 1990; DeLisi et al., 1989; Goldstein & Link, 1988; Grossman et al., 2006; Hambrecht et al., 1992; Lindamer et al., 2003; Shtasel et al., 1992; Usall et al., 2003). Some of these differences have also been observed in individuals with schizotypal personality disorder and other schizophrenia spectrum disorders

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(Dickey et al., 2005; Gurrera et al., 2005). However, it is not currently known if gender differences in clinical presentation and functioning are present prior to the development of psychosis.

To date, only one study (Amminger et al., 2006) has examined gender differences in adolescents who are at ultra-high-risk (UHR) for an imminent onset of psychosis. This study found that female sex was a significant predictor of conversion to affective psychosis two-years after ascertainment. In addition, a second study (Nordentoft et al., 2006) found that, among young adults with a diagnosis of schizotypal disorder, males had a four-fold risk for conversion to schizophrenia one-year after enrollment when compared to females. However, the findings of this study may not be directly comparable to a UHR population since diagnosis of schizotypal disorder allows for transient symptoms at the fully psychotic level. To our knowledge, no research to date has examined whether early clinical presentation or functioning differs between UHR males and females.

The current study focused on the clinical presentation of male and female patients who are UHR for developing a psychotic disorder. The primary goal was to determine if consistent relationships between gender, age at referral, psychosocial functioning, social support, and negative symptoms that are observed across phases of psychotic illness are also present in UHR youth. Second, we wanted to determine whether differences in negative symptoms are related to differences in later functioning and course of illness in UHR youth.

2. Method

2.1. Subjects

All research was conducted at the Staglin Music Festival Center for the Assessment and Prevention of Prodromal States (CAPPS) at the University of California, Los Angeles. UHR participants were recruited primarily by clinical referral from local mental health providers, school psychologists or counselors, and by self-referral in response to advertisements or the CAPPS website. Potential subjects were screened over the phone and told that the program was recruiting individuals who had experienced recent worrisome or troublesome changes in thoughts, feelings or functioning. Those individuals who were still interested and did not disclose ongoing fully psychotic symptoms were scheduled to come into the CAPPS offices at UCLA to sign informed consent and complete a more detailed screening interview.

All participants completed the Structured Interview for Prodromal States (SIPS, McGlashan et al., 2001) during screening. Additionally, if needed, adolescents age 15 and older completed the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I, First et al., 1996) and participants 14 years and younger were administered the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS, Chambers et al., 1985). Eligible individuals were between the ages of 12 and 35 years and met criteria at baseline for one of the three prodromal syndromes, as assessed by the SIPS. Information regarding SIPS prodromal criteria have been described in detail elsewhere (Meyer et al., 2005, Cannon et al., 2008).

In total, 352 people were screened, 230 did not meet criteria for any of the prodromal syndromes and 31 met for additional exclusion criteria including the presence of a neurological disorder, DSM-IV diagnosis of drug or alcohol abuse or dependence, not being fluent in English, and/or IQ below 70. Twenty-three individuals were eligible for the CAPPS study but declined to participate. All individuals who did not participate were given referrals to other research programs or treatment facilities if desired. All participants completed informed consent or assent for the study and were compensated for their participation in all assessments. Parental informed consent for minors was also obtained. Study protocol and informed consent procedures were approved by the UCLA Institutional Review Board

The majority of participants were either already receiving mental health services elsewhere or were interested in receiving referrals for psychological or psychiatric treatment providers in their community. Most individuals were interested in treatment for symptoms typical of the psychosis prodrome. This included symptoms consistent with mood or anxiety disorders, as well as subthreshold psychotic symptomatology.

Sixty-eight UHR participants (72% male) were included in the current analysis. Every subject underwent an extensive baseline evaluation including a review of relevant medical and medication history and psychosocial evaluation conducted over a period of several days. Information from parents and/or significant others was included in the clinical assessment of the participants' symptoms for minors or adults who consented to have a family member act as an informant. Data regarding perceived levels of social support at baseline were available on a subset of participants (N= 36; 67% male), as not all participants agreed to complete the social support measures.

Participants were re-assessed with all measures 6 and 12 months after the initial screening, if possible. Twenty-five individuals dropped out of the study prior to the follow-up assessments due to a lack of interest in participation, six individuals missed some of their follow-up assessments because of scheduling problems or were dropped from the study by the investigator because of a lack of participation, and ten people had not been in the study long enough to have completed all the follow-up assessments. Information at all three time points was available on 27 of the original 68 participants (N = 63% male). There were no significant differences between individuals who completed all assessments and those who did not in baseline symptoms and functioning that withstood correction for multiple comparisons.

2.2. Measures

2.2.1. The Structured Interview for Prodromal Syndromes (SIPS)—In the SIPS interview, symptoms are rated on four main scales of the Scale of Prodromal Symptoms (SOPS): positive, negative, disorganized, and general symptoms. The SOPS Positive Symptom scale assesses symptoms related to unusual thought content, suspiciousness, perceptual disturbances/hallucinations, grandiosity, and disorganized communication. Symptoms of anhedonia, avolition, flat affect, decreased role functioning, and decreased verbal comprehension/ abstraction are captured by the SOPS Negative Symptom scale. The SIPS also contains a question on family psychiatric history, an assessment of Schizotypal Personality disorder and a version of the Global Assessment of Functioning (GAF, Hall et al., 1995). All interviews were conducted by M.A., Ph.D., or M.D. level clinicians, or study personnel who had been properly trained in using the interviews and had commensurate experience. Clinical interviewers were trained by one of the developers of the instrument, and had to receive ICCs over 0.75 for each symptom and GAF rating and reliability coefficients over 0.80 for prodromal syndrome diagnoses. Further on-site reliability training was conducted wherein the director of clinical assessment or the director of treatment independently coded the first twelve cases. On-site reliability was good for symptoms (ICCs over 0.75), prodromal syndromes (kappas over 0.90) and GAF scores (ICCs over 0.80).

2.2.2. Kessler scales of social support—The Kessler scale (Schushter, Kessler & Aseltin, 1990) is a 12-item self-report questionnaire, used to assess perceived social support. Each question asks the participant to rate the quality of their social relationships on a variety of factors –e.g., “how much do people care about you”, “how much do they appreciate you”, “how often do they criticize you”. Responses were on a four-point scale, 1 = not at all, 2 = a little, 3 = some, 4 = a lot. Internal consistency was poor for the total scale ($\alpha = 0.60$) but good for the separate components measuring positive social support ($\alpha = 0.82$) and negative social

support ($\alpha = 0.86$). Therefore, subsequent analyses were conducted separately for items examining positive and negative social support.

2.3. Statistical analyses

2.3.1. Cross-sectional Analyses—Differences between male and female participants in ethnicity, religious affiliation, employment history, type of baseline medication, marital status and living situation were assessed using Chi-squared analyses. Gender differences in age, education, number of baseline medications, clinical symptoms (SIPS positive, negative, global and disorganized scales) and global psychosocial functioning were assessed using independent samples T- Tests. A Repeated Measures Analysis of Variance (ANOVA) model was used to look at responses to the Kessler scale. Two separate analyses were conducted for items measuring positive and negative support, in each analysis, gender was entered as the between-subjects variable and responses to the six questions were treated as within-subjects variables.

2.3.2. Follow-up analyses—In order to assess changes in clinical symptoms (SIPS positive, negative, global and disorganized scales) and functioning over time, Repeated Measures ANOVA models were used with gender as a between-subjects variable and the total symptom or GAF scores at each time point entered as within-subject variables.

2.3.3. Regression—For subjects who returned for future assessments, average global functioning and negative symptom variables were also created. This was done by averaging the total scores across baseline, six month and twelve month assessment points to create one average negative symptom score and one average functioning score for each participant. These averaged total scores were then used in Linear Regression models to examine the possibility that negative symptoms might mediate the relationship between gender and functioning.

3. Results

3.1. Demographic Variables

Demographic and attrition data can be found in Table 1. There were no significant differences between male and female participants on any demographic factors at baseline. There was also no significant difference in drop-out rates between male and female participants enrolled in this study.

Information on baseline medications can be found in Table 2. There were no differences in the number of males and females taking psychiatric medications at baseline, or in the average number of medications being taken by males and females at baseline. Females were marginally more likely to be taking benzodiazepines at baseline ($p = 0.07$), however, this difference did not withstand correction for multiple comparisons. There were no differences in rates of other medication classes at baseline.

3.2. Baseline Differences in Symptoms

There were no significant differences in ratings of any of the symptoms scales, or in psychosocial functioning between male and female participants at baseline. Information regarding baseline symptoms and functioning can be found in Table 3.

3.3. Longitudinal analyses

When data from all three time points were considered, there was a main effect of gender on negative symptoms ($p = 0.02$). Males were rated as having more severe negative symptoms than females over the three time points (Fig. 1). There was also a trend for an effect of gender on global functioning ($p = 0.07$). Males were rated as having marginally lower functioning

than females over the three time points (Fig. 2). Differences in negative symptoms remained marginally significant after correction for multiple comparisons. Differences in GAF scores did not withstand correction for multiple comparisons, but they are in keeping with prior findings in first-episode and chronic patients with psychosis. There was no effect of gender for ratings on the other symptom dimensions. Average symptoms ratings and GAF scores for all follow-up time points can be found in Table 3.

3.4. Social Support

There was a main effect of gender for the items measuring positive social support ($F(1,33) = 4.49, p = 0.04$). Overall, females endorsed the positive items more strongly than males and this remained significant after correction for multiple comparisons. For the negative items on the scale there was a marginally significant interaction between gender and item ($F(5,170) = 2.02, p = 0.08$). Secondary analyses revealed females were more likely to endorse that their friends and family members ‘appreciate them’ ($t(34) = -2.44, p = 0.02$), that they feel they can ‘open up’ to their friends and family members ($t(34) = -2.33, p = 0.03$) more than males, and that males report marginally higher levels of criticism ($t(34) = 1.78, p = 0.08$) than females. However, these differences did not remain significant after corrections for multiple comparisons. Ratings for all items of the Kessler scale can be found in Table 4.

3.5. Mediation of Symptoms and Functioning

Linear regressions were used to test the hypothesis that negative symptoms mediate the relationship between gender and functioning in UHR patients. As previously reported in section 3.3, considering all three time points, there was a significant relationship between gender and average ratings of negative symptoms ($r(27) = -0.45, p = 0.02$) and a marginally significant relationship between gender and average global functioning ($r(27) = 0.35, p = 0.07$). There was also a significant relationship between average negative symptoms and average global functioning ($r(27) = -0.75, p < 0.001$). Gender was no longer a significant predictor of average global functioning ($r(27) = -0.03, p = 0.78$) after accounting for average negative symptoms ($r(27) = -0.91, p < 0.001$), suggesting that negative symptoms mediate the relationship between gender and functioning.

4. Discussion

Within the sample of UHR patients, males appeared to have more severe negative symptoms and lower functioning than females, when data from all three time points was examined. The absence of differences between males and females at baseline suggests that differences in negative symptoms and functioning in UHR patients may be subtle but remain stable over time. Although the sample size was very small, incorporating data from follow-up time points decreased measurement error, thus providing a more stable and reliable means of detecting gender differences. Furthermore, differences in symptoms and functioning may be detectable at baseline with a large enough sample size.

Although the observed differences in symptoms and functioning did not remain significant after Bonferroni correction for multiple comparisons, they were exactly as predicted a priori, and they support the large literature in the field indicating that there are differences in the clinical presentation of male and female participants with psychotic disorders (Angermeyer, Kühn, & Goldstein, 1990; Bardenstein & McGlashan, 1990; DeLisi et al., 1989; Goldstein & Link, 1988; Grossman et al., 2006; Hambrecht et al., 1992; Lindamer et al., 2003; Shtasel et al., 1992; Usall et al., 2003). These findings suggest that underlying differences may predate the onset of psychosis. This could reflect the fact that males and females are vulnerable to different “types” of psychotic disorders or that psychosis develops differently in men and women.

Differences in gonadal hormones may explain why men and women with schizophrenia have different symptom presentation and functional outcomes. Findings that secondary-sex characteristics and other markers of hormonal activity may be disrupted in adult schizophrenia patients have supported the role of estrogen in the psychotic process (DeLisi et al., 1989; Maric et al., 2005). While antipsychotic medications are known to effect prolactin levels in patients (Riecher-Rossler et al., 1994), it has been shown that disruptions in estrogen levels in female patients with schizophrenia spectrum disorders cannot be fully explained by the effects of antipsychotic medications alone (Canuso et al., 2002). Furthermore, recent work by Goldstein et al. (2007) indicates that hippocampal abnormalities, which may be caused by abnormal levels of gonadal hormones, are present in both patients and their healthy relatives. This suggests that endocrine imbalances are associated with disease risk and are not a product of disease state. Furthermore, these differences appear to be more pronounced in females (Goldstein et al., 2007), indicating that these hormonal effects may be more related to disease risk for female patients than males.

Estrogen and other gonadal hormones alter many important neuronal processes (Cameron, 2004; Meethal & Atwood, 2005), have effects on cognitive and psychological functioning (Cameron, 2004) and may affect symptoms presentation in schizophrenia (Halbreich & Kahn, 2003; Riecher-Rossler & Hafner, 2000; Salem & Kring, 1998). Estrogen may also protect against the effects of glutamate toxicity, ischemia, and amyloid β exposure and may act as an antioxidant and as a general protector against inflammation in the central nervous system (Meethal & Atwood, 2005; Sribnic et al., 2004). There is even evidence that estrogen may facilitate the effects of antipsychotic medications, causing women to have a better treatment response than men and thus a better course of illness (Goldstein et al., 2002). However, more research is necessary in order to fully understand the relative contribution of gonadal hormones or any other sex-specific developmental influences towards symptoms and functioning in psychosis.

Differences in other psychosocial factors may also be contributing to better functioning and lower levels of negative symptoms in female UHR patients. Among the sample of UHR participants, males reported less positive social support than their female counterparts and felt they received marginally more criticism than females. This is of interest because among patients with psychosis, the level of hostility or criticism expressed by family members regarding an ill relative has been found to predict relapse in over a dozen studies (Butzlaff & Hooley, 1998) and the quality of social networks around an individual patient has been shown to correlate with that person's level of functioning (Erikson et al., 1998). Additionally, recent work conducted on UHR patients found that family involvement, support, and warmth predict improvement in negative symptoms and social functioning (O'Brien et al., 2006). Social support remains an important link to follow in UHR studies. Variations in social support among UHR patients may not be unique to psychosis but may instead reflect "normal" differences between males and females. It is also likely that a bidirectional relationship exists between symptoms and social support among UHR patients. However, if relationships between social support and functioning for UHR patients hold true in later analyses, then that would lend credence to the importance of psychosocial interventions for this population.

Male and female participants did not vary significantly in any relevant demographic variables, including age. The absence of an age difference in our clinical population could be explained by a variety of reasons. It may be that female participants have a longer prodromal period than males (*i.e.* males may experience a faster deterioration once subthreshold psychotic symptoms arise). Additionally, some recent studies have suggested that the age of onset differences may only exist in certain kinds of psychosis, namely among those patients who develop paranoid schizophrenia (Salokangas et al., 2003). This study would not be appropriately powered to detect any potential differences in populations who are only susceptible to specific kinds of

psychotic illnesses. Follow-up studies pooling from a larger number of participants and with greater conversion data available may be better equipped to answer these questions in the future.

In our sample, differences in negative symptoms were found to mediate differences in functioning between male and female patients. The link between negative symptoms and functioning has been well established in research examining outcomes in chronic schizophrenic patients (Brier et al., 1991; Velligan et al., 1997) however this is the first study to-date, that the authors are aware of, to show an association between negative symptoms and functioning in UHR patients. This has large implications both for future research and also for the treatment of UHR patients. The results of this study suggest that male and female UHR patients may experience different combinations of symptoms during the psychosis prodrome, and that these differences in symptoms may contribute to different functional outcomes. Due to a large attrition rate, long-term differences in symptoms and functioning could only be assessed in a small number of participants. Future replication of these findings with a larger sample size will be necessary to fully understand whether differences in symptoms and functioning predate conversion to psychosis. However, this observed association between negative symptoms and functioning highlights the importance of developing targeted interventions to decrease the severity of negative symptoms, in order to increase the general functioning and quality of life for patients.

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Appendix 1: Baseline differences between those who completed the study and those who did not

	Completed all assessments (N = 27)	No data for follow-ups (N = 41)
Baseline positive symptoms	12.7 (4.3)	11.8 (4.0)
Baseline negative symptoms	15.1 (7.5)	13.1 (7.1)
Baseline disorganized symptoms	6.5 (3.3)	6.4 (3.8)
Baseline general symptoms	9.5 (4.3)	7.7 (4.0)
Baseline GAF score	41.0 (12.2)	47.5 (9.5)

There were also no baseline differences in ratings in positive, negative or disorganized symptoms between participants who completed all follow-up assessments and those who did not. Individuals who completed all follow-up assessments had marginally higher scores on measures of general symptoms at baseline and lower GAF scores than those who did not complete all follow-ups. None of these differences remained significant after correction for multiple comparisons.

Appendix 2: Detailed description of SIPS criteria

Eligible individuals were between the ages of 12 and 35 years and met criteria at baseline for one of the three prodromal syndromes, as assessed by the Structured Interview for Prodromal Syndromes (SIPS; McGlashan et al., 2001):

1. **Attenuated Positive Symptoms:** One or more of the following symptoms rated as at least moderate in severity: unusual thoughts/delusions, suspiciousness, grandiosity, perceptual abnormalities/hallucinations, or disorganized communication. Symptoms have to have begun during the past year or intensified during the past year and must have been present at least once a week for the past month.
2. **Brief Intermittent Psychotic State:** One or more of the following symptoms rated at the psychotic level: unusual thoughts/delusions, suspiciousness, grandiosity, perceptual abnormalities/hallucinations, or disorganized communication. Symptoms have to have begun during the past three months or intensified during the past three months and must have been present for at least several minutes a day for once a month.
3. **Genetic Risk and Deterioration Syndrome:** Participants must have a first degree relative with a psychotic disorder diagnosis OR currently meet criteria for Schizotypal Personality Disorder. Participant has suffered a 30% decline in functioning (as measured by GAF scores) from the premorbid level. Change in GAF has persisted for at least one month.

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Figure 1. Negative Symptoms over Time in Male and Female Patients

Total ratings of negative symptoms were obtained by adding all the ratings across six separate questions on the SIPS, thus the range of possible total scores was 0–36. Male patients enrolled in the CAPPS program were found to have more severe levels of negative symptoms when assessed over time, than female patients. ** $p < 0.05$

Figure 2. Average Global Functioning over Time in Male and Female Patients

Average ratings of functioning at each time point were calculated using GAF scores from the SIPS. Female patients enrolled in the CAPPS program were found to have marginally higher levels of functioning when assessed over time, than male patients. * $p < 0.10$

Table 1**Demographic Information**

All demographic information was collected via self-report as part of the screening process. There were no differences found among the demographic variables for males and females enrolled in the CAPPS program.

		Males (N=49)	Females (N=19)
	Age	17.8 (3.7)	16.2 (3.9)
	$t(66)=1.54, p=0.13$		
	Ethnicity		
Caucasian		53.0%	52.6%
Latino/Hispanic		21.2%	26.3%
African American		12.1%	10.5%
Asian American		6.1%	5.3%
Other		7.6%	5.3%
	$\chi^2(4)=0.60, p=0.96$		
	Religion		
Catholic		18.4%	35.3%
Protestant		6.1%	5.9%
Jewish		19.7%	23.5%
Other		36.7%	23.5%
No Religion		18.2%	11.8%
	$\chi^2(4)=2.94, p=0.57$		
	In school	79.6%	83.3%
	$\chi^2(1)=0.12, p=0.73$		
	Years of Education	10.4 (2.9)	9.1 (2.9)
	$t(63)=1.60, p=0.11$		
	Employed	14.9%	17.6%
	$\chi^2(1)=0.07, p=0.79$		
	Marital Status		
Single		95.7%	88.2%
Married		4.3%	11.8%
	$\chi^2(1)=1.20, p=0.27$		
	Living with		
Parents		76.6%	88.9%
Other Family		8.5%	5.6%
Roommate		10.6%	0
Alone		4.3%	5.6%
	$\chi^2(3)=2.36, p=0.50$		
	Returned for follow-up	38%	53%
	$\chi^2(1)=1.84, p=0.18$		

Table 2**Medication Information**

All medication information was collected via self-report as part of the screening and clinical evaluation. Females were marginally more likely to be taking benzodiazepines at baseline ($p = 0.07$), however this difference did not withstand correction for multiple comparisons.

	Males (N=49)	Females (N=19)
Taking any medications at baseline $\chi^2(1) = 0.731, p = 0.52$	74.5%	84.2%
Average number of medications at baseline $t(64) = -0.196, p = 0.85$	1.1 (1.3)	1.2 (1.5)
Taking SSRIs $\chi^2_{SSRI}(1) = 2.365, p = 0.12$	27.7%	47.4%
Taking other antidepressants (Wellbutrin, Effexor, etc.) $\chi^2_{OD}(1) = 1.588, p = 0.43$	17%	5.3%
Taking mood stabilizers $\chi^2_{MD}(1) = 0.039, p = 1.00$	14.9%	15.8%
Taking atypical antipsychotic medications $\chi^2_{AA}(1) = 1.842, p = 0.18$	29.8%	47.4%
Taking stimulants $\chi^2_{ST}(1) = 0.000, p = 1.00$	10.6%	10.5%
Taking benzodiazepines $\chi^2_B(1) = 4.436, p = 0.07$	2.1%	15.8%

Table 3

Symptoms ratings at all time points, for males and females

All clinical information was collected via standardized interview conducted by clinicians who had received extensive training in the measures. There were no differences in baseline symptoms or functioning. Differences were found in the overall severity of negative symptoms ($p = 0.02$) and global functioning ($p = 0.07$) across time for males as compared to females. Males who completed all assessments were found to be more impaired on those measures than females, although there were no significant differences at any on time point.

	Baseline		Six Month Follow-up		Twelve Month Follow-up	
	Males (N = 49)	Females (N = 19)	Males (N = 25)	Females (N = 11)	Males (N = 17)	Females (N = 11)
Positive symptoms						
Baseline $t(66) = -1.25, p = 0.25$	11.8 (3.8)	13.2 (4.7)	9.1 (4.9)	7.4 (4.3)	8.5 (5.3)	8.1 (3.9)
Overall time $F(1,25) = 1.23, p = 0.28$						
Negative symptoms						
Baseline $t(66) = 0.97, p = 0.34$	14.4 (7.6)	12.5 (6.4)	11.7 (7.7)	7.5 (6.0)	13.2 (9.1)	9.4 (4.4)
Overall time points $F(1,25) = 6.34, p = 0.02$						
Disorganized symptoms						
Baseline $t(66) = 0.57, p = 0.57$	6.6 (3.6)	6.1 (3.6)	5.2 (3.9)	5.5 (2.3)	5.4 (3.6)	6.3 (3.3)
Over all time points $F(1,25) = 0.21, p = 0.65$						
General symptoms						
Baseline $t(66) = 0.40, p = 0.69$	8.5 (4.0)	8.1 (4.8)	6.9 (4.3)	5.2 (3.6)	7.7 (5.1)	5.5 (4.7)
Over all time points $F(1,25) = 2.39, p = 0.14$						
GAF score						
Baseline $t(66) = -0.85, p = 0.40$	44.2 (11.3)	46.7 (10.3)	52.7 (13.5)	55.9 (9.6)	51.2 (11.5)	55.0 (11.1)
Over all time points $F(1,25) = 3.561, p = 0.07$						

Table 4**Ratings of social support at baseline**

All ratings of social support were collected via self-report. Participants were instructed to rate how much or how often friends and family members provide the supports listed, using a four-point Likert scale ranging from 1 (not at all) to 4 (a lot). Differences were found in males and females ratings of how much friends and family members really appreciate them, how much they can open up to friends and family members to discuss worries or concerns, and how often friends and family members criticize them. * $p < 0.10$; ** $p < 0.05$

	Males (N = 27)	Females (N = 13)	Sig.
Care about you	3.4 (0.8)	3.8 (0.4)	ns
Understand you	2.6 (0.8)	2.8 (1.1)	ns
Appreciate you	2.9 (0.8)	3.5 (0.7)	**
Rely on them	3.0 (0.9)	3.2 (1.0)	ns
Open up to them	2.9 (0.8)	3.5 (0.7)	**
Relax around them	3.0 (0.8)	3.0 (1.2)	ns
Make demands on you	2.1 (0.7)	2.3 (0.8)	ns
Make you feel tense	2.4 (0.9)	2.3 (1.0)	ns
Argue	2.3 (1.0)	2.4 (1.0)	ns
Criticize you	2.4 (1.0)	1.8 (0.8)	*
Let you down	2.1 (0.9)	2.0 (1.0)	ns
Get on your nerves	2.5 (0.9)	2.9 (1.0)	ns