Research Article

Self-Determination Theory and First-Episode Psychosis: A Replication

Nicholas J. K. Breitborde,1 Cindy Woolverton,1 R. Brock Frost,2 and Nicole A. Kiewel3

1 Department of Psychiatry, The University of Arizona, Tucson, AZ 85713, USA
2 Department of Psychiatry, University of New Mexico, Albuquerque, NM 87131, USA
3 Department of Psychiatry, Cleveland Clinic, Cleveland, OH 44195, USA

Correspondence should be addressed to Nicholas J. K. Breitborde; breitbor@email.arizona.edu

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Self-determination theory (SDT) posits that human well-being depends on the satisfaction of three basic psychological needs: autonomy (i.e., viewing oneself as the volitional source of one’s actions), competence (i.e., perceiving one’s self as effective in interactions in one’s local world), and relatedness (i.e., feeling a sense of connectedness and belongingness with others in one’s local world). Recently, several scholars have suggested that SDT theory may be relevant to psychotic disorders [2, 3]. For example, Choi and colleagues [4] have shown that greater intrinsic motivation—a construct underpinned by the three basic psychological needs [1]—is associated with greater participation in and response to cognitive remediation among individuals with schizophrenia.

Yet, despite this potential utility of SDT, only one study to date has examined basic psychological need satisfaction among individuals with psychosis. In this study, Breitborde and colleagues [5] found that individuals with first-episode psychosis reported lower feelings of autonomy, competence, and relatedness as compared to individuals without psychosis. Moreover, greater satisfaction of basic psychological needs was modestly associated with lower general symptoms (e.g., anxiety and depression), greater social functioning, and better quality of life. Among the three basic psychological needs, relatedness was found to be the most frequent correlate of clinical and functional status among individuals with first-episode psychosis.

With only one investigation of basic psychological need satisfaction among individuals with psychosis completed to date, the reliability of Breitborde and colleagues’ [5] findings is unclear. This limitation is not unique to the Breitborde et al. study specifically; within psychiatric research, there is growing recognition of the limited reliability of findings from single studies [6, 7]. In response to this concern, scholars have
advocated for the systematic replication of research findings prior to assuming that such findings are reliable [8, 9].

Thus, the goal of this project is to replicate Breitborde and colleagues’ [5] investigation of basic psychological need satisfaction among individuals with first-episode psychosis. Consistent with the previous study, we first compared levels of basic psychological need satisfaction among individuals with first-episode psychosis to levels of need satisfaction among individuals without psychosis. Second, we investigated the association between need satisfaction and measures of symptomatology, social functioning, and quality of life among individuals with first-episode psychosis.

2. Methods

2.1. Participants. Forty-three individuals with first-episode psychosis were recruited from the Early Psychosis Intervention Center (EPICENTER: [10]). EPICENTER eligibility criteria include (i) diagnosis of a schizophrenia-spectrum or affective disorder with psychotic features as determined using the Structured Clinical Interview for the DSM-IV [11], (ii) less than 5 years of psychotic symptoms established using the Symptom Onset in Schizophrenia Inventory [12], (iii) ages 18–35, and (iv) no evidence of mental retardation or organic brain impairment. Participants in the study include 31 males and 12 females with an average age of 22.16 years (SD = 4.10). The median duration of psychotic symptoms was 13.94 months.

This project was completed in accordance with the Declaration of Helsinki. The study was approved by the University of Arizona Institutional Review Board, and all participants provided informed consent prior to enrolling in this study.

2.2. Procedures and Measures. Upon enrollment in EPICENTER and prior to the start of treatment, participants completed a series of assessments that were part of a larger research battery.

2.3. Basic Psychological Needs. Basic psychological need satisfaction was assessed using the Basic Psychological Needs Scale-General (BPNS: [13]). The BPNS is a 21-item self-report measure that assesses satisfaction of the need for autonomy, competence, and relatedness across life in general. All items are scored on seven-point Likert scale, with higher scores indicative of greater need satisfaction. Psychometric evaluations of the BPNS have revealed that this measure scores indicative of greater need satisfaction. Psychometric studies, (i) participation in prosocial activities, (iv) participation in recreational activities, (v) independence competence (i.e., ability to perform tasks of independent living), (vi) independence performance (i.e., completion of tasks of independent living), and (vii) educational/vocational functioning. Higher scores on the SFS are indicative of greater social functioning.

2.4. Symptomatology. The Positive and Negative Syndrome Scale (PANSS: [15]) was used to assess symptomatology among study participants. The PANSS is a 30-item clinician-rated instrument that assesses three domains of symptomatology: positive symptoms (e.g., hallucinations and delusions), negative symptoms (e.g., blunted affect and social withdrawal), and general symptoms (e.g., anxiety and depression). Higher PANSS scores are indicative of worse symptomatology.

2.5. Social Functioning. Participants’ level of social functioning was measured using the Social Functioning Scale (SFS: [16]). The SFS is a 79-item instrument that assesses seven areas of functioning: (i) social engagement/withdrawal, (ii) interpersonal behavior/communication, (iii) participation in prosocial activities, (iv) participation in recreational activities, (v) independence competence (i.e., ability to perform tasks of independent living), (vi) independence performance (i.e., completion of tasks of independent living), and (vii) educational/vocational functioning. Higher scores on the SFS are indicative of greater social functioning.

2.6. Quality of Life. The WHO Quality of Life Instrument-Brief (WHOQOL-BREF: [17]) was used to assess quality of life among study participants. The WHOQOL-BREF is a 26-item self-report scale that measures four domains of quality of life: (i) physical health, (ii) psychological health, (iii) social relationships, and (iv) quality of one’s environment. Scores for each domain range from 0 to 100, with higher scores indicative of greater quality of life.

2.7. Analyses. Prior to the analyses, missing data points were replaced using multiple imputation (MI: [18]). This strategy comports with current guidelines for addressing missing data [19]. Comparison of BPNS scores between individuals with first-episode psychosis and individuals without a known psychotic disorder was completed using independent t-tests controlling for the additional variance created through the use of MI [20]. Evaluation of the association between BPNS subscales and measures of symptomatology, social functioning, and quality of life was completed using Pearson correlation coefficients controlling for the additional variance created through the use of MI [20].

3. Results

3.1. Satisfaction of Basic Psychological Needs. Among individuals with first-episode psychosis, there were no statistically significant differences between scores on the autonomy, competence, and relatedness subscales (all P values > 0.05). BPNS scores for individuals with first-episode psychosis versus those with no known psychotic disorder are shown

Among the 9145 individuals in these studies, the average age was 20.45 years (SD = 2.98) and 39% of the individuals were male.
in Table 1. Compared to individuals without psychosis, individuals with first-episode psychosis reported lower autonomy ($t(7622) = 5.43; P < 0.01$), competence ($t(7924) = 7.15; P < 0.01$), and relatedness ($t(7945) = 8.26; P < 0.01$).

Of note, there were a number of demographic variables that differed between the individuals with first-episode psychosis and the participants from the comparison studies (see Table 1). Specifically, individuals with first-episode psychosis were more likely to be men ($\chi^2(1) = 19.93; P < 0.01$) and were older ($t(8320) = 3.74; P < 0.01$) than the individuals without psychosis. Available research suggests that there is no association between gender and psychological need satisfaction [21]. Moreover, although need satisfaction has been shown to increase with age [22], our sample of individuals with first-episode psychosis reported lower need satisfaction than the younger cohort of individuals without a known psychotic disorder. Additionally, our results further comport with findings by Breitborde et al. in that we found modest associations between basic psychological need satisfaction and symptomatology, social functioning, and quality of life among individuals with first-episode psychosis.

Of note, there is a key difference between our results and those reported by Breitborde and colleagues [5]. Specifically, whereas Breitborde et al. found that relatedness was the psychological need most frequently associated with clinical/functional status, among our sample, no single psychological need stood out as the best predictor of clinical/functional status. Important differences among the participants in these two studies may have contributed to this finding. For example, compared to participants in the Breitborde et al. study, our subjects had a longer duration of psychotic symptoms ($Median = 13.94$ versus $3.46$ months, Wilcoxon rank-sum $z = -3.71; P < 0.01$) but a shorter duration of participation in specialized treatment for first-episode psychosis ($Mean = 0$ versus $9.91$ months, Wilcoxon rank-sum $z = 5.22; P < 0.01$). This raises the possibility that satisfaction of the needs for autonomy and competence may be more important later in the early course of psychotic disorders and/or earlier during individuals’ participation in specialized clinical services for first-episode psychosis. Relatedness, on the other hand, may be important throughout the early course of psychotic disorders as well as throughout participation in care for first-episode psychosis.

Our study did suffer from a number of limitations. The sample size was small and comprised predominantly of men. Likewise, our results may not generalize to individuals with longstanding psychotic illnesses. Finally, given our cross-sectional study design, the direction of the relationship between psychological need satisfaction and clinical/functional status is unclear.

In conclusion, the results of our replication study support the hypothesis that deficits in satisfaction of basic psychological needs are present early in the course of psychotic disorders and are associated with measures of clinical/functional status.

4. Discussion

Consistent with the results from Breitborde et al. [5], individuals with first-episode psychosis in our study reported lower autonomy, competence, and relatedness than individuals without psychosis. Similar reports of reduced need satisfaction have also been noted in studies of individuals with other forms of psychopathology (e.g., posttraumatic stress disorder [14] and major depressive disorder [23]). Our finding likely cannot be accounted for due to demographic differences between the two groups (i.e., gender and age). Available research suggests that there is no association between gender and psychological need satisfaction [21]. Moreover, although need satisfaction has been shown to increase with age [22], our sample of individuals with first-episode psychosis reported lower need satisfaction than the younger cohort of individuals without a known psychotic disorder. Additionally, our results further comport with findings by Breitborde et al. in that we found modest associations between basic psychological need satisfaction and symptomatology, social functioning, and quality of life among individuals with first-episode psychosis.

3.2. Symptomatology. Correlations between BPNS and PANSS are shown in Table 2. There were no statistically significant associations between severity of positive or negative symptoms and levels of autonomy, competence, or relatedness. Higher levels of general symptoms were associated with lower levels of autonomy and competence.

3.3. Social Functioning. Correlations between BPNS and SFS are shown in Table 2. Better interpersonal communication was associated with greater autonomy, competence, and relatedness. Higher levels of competence were also associated with greater success in the performance of independent living skills (i.e., Independence-Performance subscale). Greater perceived competence with regard to the performance of independent living skills (i.e., Independence-Competence subscale) was associated with higher autonomy and competence.

3.4. Quality of Life. Correlations between BPNS and WHOQOL-BREF are shown in Table 2. Better physical health was associated with higher levels of autonomy. Greater psychological health was associated with higher levels of autonomy, competence, and relatedness. Better social relationships were associated with greater autonomy and relatedness. There were no statistically significant associations between quality of one’s environment and BPNS subscales.

### Table 1: Demographics and BPNS scores among individuals with first-episode psychosis versus individuals with no known psychotic disorder.

<table>
<thead>
<tr>
<th></th>
<th>Individuals with first-episode psychosis</th>
<th>Individuals with no known psychotic disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>43</td>
<td>9145</td>
</tr>
<tr>
<td>Age</td>
<td>M = 22.16</td>
<td>M = 20.45</td>
</tr>
<tr>
<td>Percent male—female</td>
<td>74%—26%</td>
<td>39%—61%</td>
</tr>
<tr>
<td>Autonomy</td>
<td>M = 4.26</td>
<td>M = 5.00</td>
</tr>
<tr>
<td>Competence</td>
<td>M = 4.04</td>
<td>M = 5.07</td>
</tr>
<tr>
<td>Relatedness</td>
<td>M = 4.18</td>
<td>M = 5.33</td>
</tr>
</tbody>
</table>
Table 2: Symptomatology, social functioning, and quality of life: descriptive statistics and correlations with BPNS scores.

<table>
<thead>
<tr>
<th></th>
<th>M (SD)</th>
<th>Autonomy</th>
<th>Competence</th>
<th>Relatedness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptomatology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive symptoms</td>
<td>15.30 (2.41)</td>
<td>−0.16</td>
<td>−0.22</td>
<td>−0.09</td>
</tr>
<tr>
<td>Negative symptoms</td>
<td>13.71 (2.33)</td>
<td>0.12</td>
<td>0.13</td>
<td>−0.02</td>
</tr>
<tr>
<td>General symptoms</td>
<td>30.95 (2.66)</td>
<td>−0.41*</td>
<td>−0.36*</td>
<td>−0.25</td>
</tr>
<tr>
<td><strong>Social functioning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social engagement/withdrawal</td>
<td>10.24 (1.74)</td>
<td>0.15</td>
<td>0.29</td>
<td>0.20</td>
</tr>
<tr>
<td>Interpersonal communication</td>
<td>6.86 (1.55)</td>
<td>0.42*</td>
<td>0.50*</td>
<td>0.44*</td>
</tr>
<tr>
<td>Independence performance</td>
<td>23.60 (2.77)</td>
<td>0.27</td>
<td>0.42*</td>
<td>0.18</td>
</tr>
<tr>
<td>Recreation</td>
<td>17.72 (2.58)</td>
<td>0.19</td>
<td>0.12</td>
<td>−0.03</td>
</tr>
<tr>
<td>Prosocial activities</td>
<td>14.35 (2.95)</td>
<td>0.13</td>
<td>0.24</td>
<td>0.06</td>
</tr>
<tr>
<td>Independence competence</td>
<td>34.13 (2.35)</td>
<td>0.36*</td>
<td>0.35*</td>
<td>0.20</td>
</tr>
<tr>
<td>Educational/occupational functioning</td>
<td>6.45 (1.90)</td>
<td>0.13</td>
<td>0.10</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Quality of life</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical health</td>
<td>53.16 (5.43)</td>
<td>0.40*</td>
<td>0.19</td>
<td>0.16</td>
</tr>
<tr>
<td>Psychological health</td>
<td>39.65 (5.48)</td>
<td>0.48*</td>
<td>0.40*</td>
<td>0.36*</td>
</tr>
<tr>
<td>Social relationships</td>
<td>34.31 (5.21)</td>
<td>0.43*</td>
<td>0.18</td>
<td>0.35*</td>
</tr>
<tr>
<td>Environment</td>
<td>52.63 (5.44)</td>
<td>0.29</td>
<td>0.21</td>
<td>0.10</td>
</tr>
</tbody>
</table>

* P < 0.05.

Ultimately, developing clinical environments designed to address these deficits may facilitate greater motivation among individuals with first-episode psychosis to participate in treatment activities [2, 3].

**Conflict of Interests**

The authors declare that there is no conflict of interests regarding the publication of this paper.

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**References**


