ORIGINAL ARTICLE

Loneliness Among in-patients Diagnosed With Schizophrenia: Its Correlates and Relations With Social Support and Satisfaction With Life

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ABSTRACT

Introduction: Schizophrenia is one of the most serious and disabling psychiatric disorders which affect the overall patients' life and predispose them to suffer from loneliness. The purpose of this study was to identify levels and correlates of loneliness among patients with schizophrenia. **Methods:** A cross-sectional design was applied to collect data about loneliness; social support from friends, family members, and significant others; satisfaction with life; and demographic and illness-related variables. A semi-structured interview with patients was employed to collect data from 230 in-patients with schizophrenia receiving treatment at a large psychiatric hospital. **Results:** Level of loneliness was 52.6 out of 80. Higher rates of patients (66.5%) were found within the category of moderate to high level of loneliness. Loneliness was found to be highly associated with low satisfaction with life, low social support from friends, and longer duration of treatment. Loneliness was higher in female patients, those living with other people in the house, and those with a history of drug/substance abuse. **Conclusion:** Loneliness was found to be in a moderate to high level. Therefore, there is a crucial need for interventional programs that aimed to decrease the feeling of loneliness and enhance satisfaction with life and social support from others among patients with schizophrenia.

Keywords: Loneliness, Inpatients, Schizophrenia, Mental health, Jordan

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INTRODUCTION

Schizophrenia is considered one of the most common and serious psychiatric disorder which affects around 21 million people around the world (1) and is characterized by altered thought process and distorted behaviour with the experience of positive and negative symptoms (2). In schizophrenia, most patients have marked deficit in functioning which considered a core features that can be observed in early stages of the disorder as well as in residual phases. Deficits in functioning among patients with schizophrenia predisposed them to negative psychological health consequences such as increased level of loneliness, decreased in satisfaction with life, and decreased level of perceived social support from friends, family members, and others. Moreover, these deficits and negative consequences increase the rate of relapse and readmissions and even exacerbate the symptoms (3,4).

Loneliness is a subjective feeling of unpleasant experiences with both quality and quantity of certain relationships and networking (5). Loneliness is a feeling that can be annoying, frightening, and undesirable especially when loneliness cause health problems and affect quality of life (6). The prevalence of loneliness is varied among non-clinical people. For example, 6% of the adult population in UK were severely lonely. Among Norwegian population, loneliness rates were around 24% of the general population (7). Most people experience a transient period of loneliness (8), however, patients with chronic illnesses such as schizophrenia, suffer from severe levels of loneliness (3,5,9-10). Using the Revised University of California Los Anglos (UCLA) Loneliness Scale, Schwartz and Gronemann (9) found that the mean score of loneliness among patients with schizophrenia living in supported apartments was 44.1 (SD=11.3). Also, among Japanese patients with schizophrenia living in the community, Shioda et al. (11) found that the mean score of loneliness was 45.6 (DS=11.2) (11). Further, Tremeau et al. (10) found a mean score of loneliness among patients with schizophrenia to be 45.09 (SD=9.96) (10).

Loneliness among patients with schizophrenia lead to discrimination (5), depression and loss of confidence (4), decreased in self-efficacy and social support (9),

decreased in cognitive functioning (3), and increased in paranoid believes (12). Research studies found that loneliness among patients with schizophrenia has been correlated with social support, quality of life, stigma, social networks, number of psychiatric admissions, self-efficacy, community integration, mental disorders, social functioning, self-esteem, and paranoid thought disorders (3, 9-15).

Social support is a function of beliefs about self-worth and the availability of responsiveness to others (16). There is a strong evidence that adequate social support reduced psychiatric symptoms and foster recovery among patients with mental illnesses especially those with schizophrenia (3). People with schizophrenia often have trouble in developing and maintaining good social support system and spend most of their time alone without any activities or relationships. In an attempt to improve social support among patients with schizophrenia, McCorkle et al. (17) assigned trained volunteers who formed one-one relationships with the clients to provide them with social support, recreational, and support activities. In addition to a regular psychotherapy, those volunteers met with the clients on a regular basis for one year. Results showed an increased in the level of social support and well-being as well as decreased in psychiatric symptoms.

Social support can be provided by family members, friends, and significant others (18). Family is considered a crucial source of care giving and social support for patients with schizophrenia. For example, Razali and Hariani (19) found that good or positive care giving increased the perceived social support and therefore increased patients' prognosis and reduced the psychiatric symptoms. Similarly, Sawant and Jethwani (20) found that good family functioning and social support improved patients' prognosis and found lower social support from family members than those perceived from friends. In addition, social networks and social support improve quality of life and decrease psychiatric symptoms of patients with schizophrenia (4,21). Also, adequate social support improves life skills and adaptation (22) as well as foster community adaptation and participation among patients with schizophrenia (9). Further, social support and community participation predicted loneliness among patients with schizophrenia (9).

Satisfaction with life is a cognitive evaluation of one's life according to a chosen criterion and is considered as one of the most important parts of subjective well-being (23). Satisfaction with life is a central element for all humans in general and for psychiatric patients in particular. Therefore, people with mental illnesses such as schizophrenia showed low levels of life satisfaction compared to the general population (24,25). Satisfaction with life among patients with schizophrenia can be improved by providing them with adequate interventions that improve their functioning (social,

work, and cognitive), enhance their recovery and their occupational roles (6).

Globally, literature indicated that good social support from different sources and adequate level of satisfaction with life decreased the feelings of loneliness among patients with schizophrenia, but none of those studies examined the association between those variables together. Therefore, the current study investigated the association among those variables in patients with schizophrenia. Specifically, this study will:
1. Identify levels of loneliness, social support, and satisfaction with life among Jordanian in-patients with schizophrenia.
2. Explore the relationships between loneliness and social support, satisfaction with life, and socio demographic variables among Jordanian in-patients with schizophrenia.
3. Examine the differences in demographic variables (i.e. gender, living status, history of drug/substance abuse, marital status, and employment status) of in-patients with schizophrenia in relation to loneliness.
4. Examine the predictors that affect loneliness among Jordanian in-patients with schizophrenia.

MATERIALS AND METHODS

Design and setting
A predictive, cross-sectional, correlational design was used to detect the predicting factors of loneliness and its' relationship with social support, satisfaction with life, and demographic factors in a Jordanian sample of in-patients with schizophrenia.

In Jordan, there are three specialized psychiatric hospitals: the largest one with 345 beds called National Center for Mental Health (NCMH) which is operated by Jordanian Ministry of Health, the second is operated by Royal Medical Services with 43 beds, and the last one operated by a private sector with 75 beds. Psychiatric in-patient services within general hospitals are available in two university hospitals with 22 beds. All psychiatric hospitals provide a comprehensive psychiatric and psychological care. Data for this study were collected from the NCMH, which is the largest specialized psychiatric hospital that provides psychiatric and psychosocial care for patients from different areas of Jordan.

Sample and data collection procedure
Sample size estimated using G. power 3.0 (27). Correlational model of a medium effect size (0.30), at power of 0.80 at alpha of 0.05, and two-tailed level of significance using Pearson correlational coefficients test, the sample size will be at least 132 participants. A convenience sample of 230 in-patients with schizophrenia was recruited.

The researcher approached and invited the eligible

patients to participate in the study. Inclusion criteria included all adult in-patients diagnosed with schizophrenia, and have good cognitive functioning. Good cognitive functioning indicated by a score of 23 (maximum score is 30) or above using The Mini Mental State Examination (MMSE) (28). MMSE is a tool of 11-questions measures five areas of cognitive functions: orientation, registration, attention and calculation, recall, and language. Exclusion criteria included those patients with severe hearing and communication problems, poor cognitive functioning (less than 23 on MMSE), and those diagnosed with substance dependence and mental retardation.

After explaining the purpose of the study to the possible participants, those who met the inclusion criteria and agreed to participate were asked to sign a consent form (in the presence of witness from family or healthcare members) and to answer the questionnaire. Data were collected by the researcher in a private room employing face to face structured interview. The average interview time to complete a questionnaire was around 40 minutes for each participant.

Instruments
The questionnaire for this study consisted of three tools as well as demographic and illness-related variables' sheet. Demographic variables included: age, gender, marital status, educational level, monthly income level, employment status, living status, and number of family members in the household. Illness-related variables included: age at the onset of illness, duration of illness, duration of treatment, number of previous hospitalizations, and history of drug abuse. The whole questionnaire was translated by an expert to Arabic language then back translated to English by another expert. A third bilingual expert who matched the Arabic and English versions slightly modified some items to be easily comprehended and to be culturally suitable. Also, the questionnaire piloted with 10 patients.
1. The Revised University of California Los Anglos (UCLA) Loneliness Scale- (LS) version 3 was used to measure loneliness (29). LS consists of 20 items answered on a 4-point Likert type scale ranging from 1 (never) to 4 (always). Total score range between 20 and 80. Higher score indicates higher level of loneliness. There are classification schemes for the loneliness scores (20-34 indicates "Low level", 35-49 indicates "Moderate level", 50-64 indicates "Moderate to high level", and 65-80 indicates "High level") (29). This scale has good validity (convergent and construct) and reliability. Internal consistency ranged from 0.89 to 0.94, and test-retest reliability over one year was 0.73 (30). In this study, the internal consistency reliability as measured by Cronbach's alpha was 0.85.
2. Multidimensional Scale of Perceived Social Support (MSPSS) (16) was used to measure the perceived social support. MSPSS consists of 12 items that measure the perceived social support from three groups: friends, family members, and significant others. Each item is scored on a 7-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). Each subscale consists of 4 items, therefore the scores of each subscale ranged from 4 to 28, and the total scale ranged between 12 and 84. Higher scores indicated higher social support perceived from friends, family members, or significant others. The internal consistency reliability of the scale as measured by Cronbach's alpha coefficients for subscales of family, friends, and significant others were 0.91, 0.89, and 0.91 respectively and 0.93 for the total scale (31). In the current study, the alphas were 0.91, 0.87, 0.89 for subscales and 0.92 for the total MSPSS scale.
3. Satisfaction with Life Scale (SWLS) was used to measure satisfaction with life (23). This scale consists of 5 items scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A total score is calculated by summing the individual responses of the 5 items. The higher the score the more satisfied the person. Total score ranges from 5-35. Score of 5-9, 10-14, 15-19, 20, 21-25, 26-30, 31-35 indicates "Extremely dissatisfied", "Dissatisfied", "Slightly dissatisfied", "Neutral", "Slightly satisfied", "Satisfied", "Extremely satisfied", respectively. In this study, the internal consistency reliability as measured by Cronbach's alpha was 0.80.

Ethical considerations
Before data collection, Institutional Review Board (IRB) of Ministry of Health and the IRB of the university where the researcher is working approved the study. After explaining the purpose and the procedure of the study to the participants, those who agreed to participate signed a consent form in the presence of family or caregiver member. Also, participants were informed that their participation is voluntarily and that they can withdraw from the study at any time during data collection without any penalty that may affect their treatment. Further, participants were assured that their responses to the questionnaire would be anonymous and confidential.

Statistical analyses
Data analyzed using SPSS, version 21(SPSS Inc., Chicago, IL, USA). Descriptive statistics such as frequencies, percentages, means, standard deviations (SD) and score ranges were used to describe demographics, illness-related variables, loneliness, social support, and satisfaction with life. Pearson correlation or Spearman's rank correlation were used to examine the relationship between loneliness and studied variables. Differences of loneliness in relation to some demographic variables (i.e. gender, living status, history of drug/substance abuse, marital status, and employment status) were tested with t-test or Analysis of Variance (ANOVA). Regression analysis using forced enter method was employed to examine the predictor variables of loneliness. All statistical assumptions were met. No signs of multicolinearity detected. A p value of ≤ 0.05 was considered as statistically significant.

RESULTS

Sample characteristics

Out of 400 patients who were asked to participate in the study, 340 agreed to participate, 110 of them were excluded because they did not meet the inclusion criteria. The final sample consisted of 230 participants, of whom, 113 (49.1%) were male, 122 (53.0%) were single, 69 (30.0%) were married, and 39 (17.0%) were divorced/separated/widowed. Participants' age ranged between 18 and 65 years (Mean= 36.7, SD=10.4). Only around one-third (n=75, 32.6%) were employed in either full-time or part-time jobs. A large percentage of the participants living alone (n=182, 79.1%).

In terms of history of drug/substance abuse, only 41 (17.8%) participants have a history of drug/substance abuse. Table I showed other characteristics of the sample.

Levels of loneliness, social support, and satisfaction with life

Participant patients had a moderate to high level of loneliness with a mean score of 52.6 (SD=7.5) out of 80. More than half of the sample had a moderate to high

Table I: Demographic and illness-related variables (N=230)

Variable	Mean	SD
Age (years)	36.7	10.4
Education (years)	11.0	3.8
Family monthly income ($)	463	348
Number of family members in the household	4.6	2.7
Age at onset of illness	24.5	7.4
Duration of illness (years)	12.6	10.0
Duration of treatment (years)	11.9	10.1
Number of previous hospitalizations	4.2	4.1
	Frequencies	Percentages
Gender		
Male	113	49.1
Female	117	50.9
Marital status		
Single	122	53.0
Married	69	30.0
Divorced/separated/widowed	39	17.0
Employment status		
Full-time	37	16.1
Part-time	38	16.5
Not employed	155	67.4
Living status		
Live with somebody	48	20.9
Live alone	182	79.1
History of drug abuse		
Yes	41	17.8
No	189	82.2

level of loneliness (n=153, 66.5%). The average score of social support as perceived by patients was 44.86 (SD=16.84) out of 84. Significant others were found to give the higher support for patients with schizophrenia with a mean of 16.45 (possible range 4-28), while the lowest was from friends (mean=12.03). Average of satisfaction with life was 17.12 (SD=7.73, possible range 5-35). Almost two-thirds of the sample (n=148, 64.4%) were dissatisfied with life, 73 (31.7%) were satisfied with life, and 9 (3.9%) were neutral (Table II).

Table II: Means, standard deviations, frequencies, and percentages of loneliness, perceived social support, and satisfaction with life (N=230)

Variable	Mean	SD	n	%
Loneliness (total)	52.6	7.5		
Low level			3	1.3
Moderate level			67	29.1
Moderate to high level			153	66.5
High level			7	3.1
Perceived Social Support (total)	44.86	16.48		
From friends	12.03	6.7		
From family members	16.36	6.6		
From significant others	16.45	6.3		
Satisfaction with Life (total)	17.12	7.37		
Extremely dissatisfied			38	16.6
Dissatisfied			63	27.4
Slightly dissatisfied			47	20.4
Neutral			9	3.9
Slightly dissatisfied			34	14.8
Satisfied			31	13.4
Extremely satisfied			8	3.5

Differences of loneliness in relation to some demographic variables (i.e. gender, living status, history of drug/substance abuse, marital status, and employment status) were tested with t-test and Analysis of Variance (ANOVA). There were significant differences in loneliness level in regard to gender (t=15.4, df=229, p=0.000), living status (t=106.73, df=229, p=0.000), and history of drug/substance abuse (t=106.73, df=229, p=0.000). In other words, loneliness was higher in females, those living with other people in the house, and those with history of drug/substance abuse. However, no differences were found regarding marital status and employment status.

Relations and predictors of loneliness

Significant negative correlations were found between loneliness scores with social support scores [(r=-0.544, social support from friends (r=-0.546), social support from family members (r=-0.358), and social support from significant others (r=-0.464)], satisfaction with life (r=-0.549), age at diagnosis with schizophrenia (r=-0.134), duration of disorder (r=0.174), and duration of treatment (r=0.175). To identify the factors that predict loneliness, multiple regression analysis (forced enter method) performed by entering demographics, social support

from friends, family members, and significant others, and satisfaction with life as independent variables. Three variables were found to predict loneliness among patients with schizophrenia. Patients with schizophrenia who reported low levels of satisfaction with life, low levels of social support from friends, and higher duration of treatment experienced higher levels of loneliness. The total variance explained by those three variables was 41.3% (Table III).

DISCUSSION

Results of this study found that Jordanian patients with schizophrenia had a moderate to high level of loneliness (mean= 52.6, SD=7.5). This result showed that Jordanian patients who diagnosed with schizophrenia had higher level of loneliness than their counterparts in other countries. For example, level of loneliness among Japanese patients with schizophrenia who are living in local support centers was 45.6 (SD=11.2) (11), around 44.1 (SD=11.3) among Israeli patients living in supported apartments (9), around 45.9 (SD=9.96) among American inpatients and outpatients with schizophrenia and schizoaffective disorders (10), and about 45.3 (SD=8.9) among American adults with schizophrenia and bipolar disorders (32).

In terms of perceived social support, results of the current study found that the mean score of total perceived social support was 44.86 (SD=16.84). The highest level of perceived social support was from significant others (mean=16.45), while the lowest was from friends

(mean=12.03). These results were consistent with the results from similar studies. In Jordan, social support among patients with schizophrenia was 17.32 (21), was 18.08 among Israeli patients with schizophrenia living in supported apartments (15), was 17.2 among Singapore patients with schizophrenia (18), and was 14.76 among unremitting Indian patients with schizophrenia.

Regarding satisfaction with life, the mean score was 17.12 (SD=7.73). Two-thirds of the sample (n=148, 64.4%) were dissatisfied with their life, 73 (31.7) were satisfied, and 9 (3.9%) were neutral. Compared with general population, patients diagnosed with schizophrenia showed lower level of satisfaction with life (23). However, in a similar sample, satisfaction with life was higher than those experienced by Jordanian patients with schizophrenia. Wu and Wu (33) found that the mean score of satisfaction with life among Taiwanese patients with schizophrenia living in community was 20.5 (SD=7.33).

Among demographics studied, results of this study found that loneliness was higher in female, those living with other people in the house, and those with history of drug/substance abuse. Our results did not support the view that most demographics (i.e. age, income, educational and employment status, and number of family members) play a crucial role in explaining loneliness in patients with schizophrenia (14). However, results of this study are consistent with results of Tremeau, et al. (10) which found that loneliness did not correlate with demographics nor with relationships with

Table III: Multiple regression model predicting loneliness (N=230)

Predictors	B	β	t	p
Satisfaction with life	-0.401	-0.395	-7.09	**0.000**
Social support from friends	-0.396	-0.357	-6.37	**0.000**
Duration of treatment	0.109	0.146	2.90	**0.004**
Social support from family members	-0.035	-0.031	-0.451	0.652
Social support from significant others	-0.064	-0.054	-0.676	0.500
Gender (0=f, 1=m)	-1.109	-0.074	-1.175	0.241
Living (0=alone, 1=with others)	0.098	0.005	0.087	0.931
Marital status (0=single, 1=married)	-1.091	-0.067	-1.198	0.232
Employment status (0=no, 1=yes)	0.014	0.002	0.031	0.975
History of drug/substance abuse	-1.189	-0.061	-4.057	0.292
Age	-0.164	-0.229	-1.273	0.204
Educational level	-0.038	-0.020	-0.362	0.718
Income level	0.001	0.038	0.697	0.487
Number of members in household	-0.005	-0.002	-0.033	0.973
Age at onset of illness	0.137	0.136	1.045	0.297
Duration of illness	0.024	0.033	0.159	0.873
Previous hospitalizations	0.005	0.003	0.055	0.956

Model Summary
R^2 0.457
Adjuster R^2 0.413
Total Variance   41.3%

friends and peers. Regarding gender, result of this study is consistent with the results of Meltzer and colleagues (14) who found that loneliness was more prevalent in women with schizophrenia. One explanation of this is that women in Jordanian culture, especially those suffering from mental illnesses, spent most of their time in house. Contrary to what is expected, results of this study revealed that those patients living with other people in the house felt more lonelier than those living alone. For example, Schwartz and Gronemann (9) found that people living in independent apartments felt more lonelier than those living in group homes where many people living together. Further, people living in group homes had higher level of social support and lower levels of loneliness (15). An explanation of this contradictory result may be due to the lower number of patients who are living with others (n=48, 20.9%) compared to those living alone (n=182, 79.1%). Another explanation may be due to the sample characteristics or illness-related variables. For example, patients who are living with others were older (42.5 years), with higher duration of illness (15.5 years), with higher duration of treatment (14.7 years), and with lower income level ($181) than those living alone, which indicated that they had more severe disorder. Regarding drug/substance abuse, other studies also found higher correlations between loneliness and drug/substance abuse. In all patients participated in the study, loneliness among patients with schizophrenia predicted the presence of substance abuse disorders, and a higher number of substances abused (10).

Results of this study also indicated that loneliness among patients with schizophrenia was predicted by low levels of satisfaction with life, low levels of social support from friends, and higher duration of treatment. Results of the current study were consistent with the results of other studies regarding satisfaction with life, in that, loneliness is highly correlated with dissatisfaction with life. Most patients with psychiatric disorders were dissatisfied with their life in terms of leisure-time, sexual and family life, and relations with others (26). Also, McCorkle et al. (17) found that higher levels of subjective well-being and social support decrease psychiatric symptoms and decrease the feelings of loneliness among patients with serious mental illnesses.

Regarding social support particularly from friends, results of the current study were in consistent with the results of most studies. Perceived social support was a predictor of loneliness in most studies that addressed a negative correlation between social support and loneliness among patients with schizophrenia (4,9,11,14-15). In a Jordanian sample of patients with schizophrenia, social support was a predictor of quality of life, and the most perceived social support was from significant others followed by family members, and finally from friends (21). In this study social support from friends was a predictor of loneliness. In other words, lack of social support, particularly from friends, increase the level of loneliness in patients with schizophrenia. Further, social support from friends and family members have a positive effect on loneliness (11). Therefore, it is important to encourage friendships of psychiatric patients with others. Regarding duration of treatment, Chrosteck et al. (13) found that the number of admissions predicted levels of loneliness among patients with schizophrenia. Also, longer duration of treatment which is associated with chronicity affect the quality of life of patients with schizophrenia negatively (21).

Results of this study support the need for interventions for patients with schizophrenia regarding loneliness. Participation in leisure and social activities in the community or even in the hospital setting enhance social support among patients which in turn reduce the feelings of loneliness. Mental health professionals and caretakers of individuals with schizophrenia should encourage their patients to participate in community activities that increase their feelings of perceived social support and reduce their feelings of loneliness. Also, to extend patients' networking by engaging their friends and family members in patients' activities (11). Enhancing social skills will increase the opportunities for social interactions that targeting maladaptive social cognition and decrease the feeling of loneliness. Changes and enhancing in life functioning skills will also improve satisfaction with life and decrease the feelings of loneliness (14).

This study provides valuable information regarding loneliness among patients with schizophrenia in Jordan. However, there were few limitations of this study. First, using cross-sectional design prevent concluding causal and directional relationships between loneliness and studied variables among patients with schizophrenia, therefore, longitudinal studies are recommended to identify the causal roles of loneliness with other factors. Second, perceived social support was measured from family members, friends, and significant others, which is concentrated only on perceived not received social support. Future studies should take in consideration the functional support scales such as those that measure emotional/informational, tangible, affective, and positive social interaction (4). Third, although the data were collected from patients in the largest and most specialized psychiatric setting in Jordan, the target population of this study is limited to one area, which maybe not representative to the whole population of patients with schizophrenia in Jordan. Therefore, data should be generalized to other areas with cautions, and future studies should consider all areas of psychiatric mental health settings in Jordan. Fourth, there is a possibility of bias in responses because this study relied on self-reporting only. Future studies may consider other methods of collecting data such as observations and qualitative approaches. Fifth, there may be other variables that could contribute to loneliness but not measured here. Future studies should add other

variables such as physical illness, personality traits, psychiatric symptoms, environmental factors, self-esteem and efficacy, discrimination, stigma, poverty, and inadequate housing.

CONCLUSION

This study highlighted the connection between loneliness, social support, and satisfaction with life among Jordanian patients with schizophrenia. Results revealed moderate to high level of loneliness among patients with schizophrenia. Also, they have poor social support and poor satisfaction with life. Interventional programs are required to enhance social support and increase life satisfaction that mitigate the effect of loneliness..

ACKNOWLEDGEMENTS

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