Original Article

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Quality of Life in Remitted Patients with Schizophrenia: A Cross-Sectional Study

Maryam Masoomi, Behrang Shadloo and Homayoun Amini*

Department of Psychiatry, Roozbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran

*** Corresponding author**
Homayoun Amini, MD, MPH
Department of Psychiatry, Roozbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran
Tel: +98 21 5541 2222
Fax: +98 21 5541 9113
Email: aminihom@tums.ac.ir

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Abstract

Background: Assessment of the Quality of Life (QOL) is increasingly performed as an efficient method to assess the quality of care provided for patients with schizophrenia. Also, the QOL assessment performed by patients themselves is more affected by the symptoms of schizophrenia. Therefore, a mental health professional evaluation may provide more objective information. This study was undertaken to objectively assess QOL in a group of remitted patients with schizophrenia in Iran by using Quality of Life Scale (QLS).

Methods: This descriptive cross-sectional study was performed on 85 remitted patients with schizophrenia consecutively referred to Roozbeh Hospital. The mean age of the participants was 37.81±9.92 years, 54 (63.53%) were male, 16 (18.8%) were married, and 19 (22.4%) were employed. The Quality of Life Scale (QLS) was used to collect data through face-to-face interviews.

Results: The total score of QLS for patients is 2.950.93±. Among subscales, the interpersonal relations scores (2.44±1.10) and intrapsychic foundations scores (2.90±1.07) were lower than the other domains scores. The QLS score was higher in patients with an associate degree or higher level of education (p-value<0.01) and those living with family members (p-value<0.01). The overall employment rate was low among the patients. There was no significant relationship between current doses of various medications and any QLS domain scores; however, a significant inverse relationship was between the current doses of first- and second-generation antipsychotics and the instrumental role domain score.

Conclusion: The findings of this study showed that the scores of different domains of QLS were low in the remitted patients with schizophrenia. The impact of different antipsychotic treatments and their side effects on the QOL should be addressed in future studies.

Keywords: Antipsychotics, Quality of Life, Schizophrenia

Introduction

Schizophrenia is one of the most disabling psychiatric disorders, occurring in approximately 1% of the population (1). It significantly affects the personal, familial, and social life of patients (2). The World Health Organization defines Quality of Life (QOL) as an individual's understanding of the status of life in a cultural context and the system of values that a person lives in concerning goals, expectations, and standards. In recent decades, there has been an increased interest in QOL of patients with mental disorders, especially patients with schizophrenia (3). These studies have demonstrated that psychiatric symptoms have a negative impact on a person's QOL. In particular, studies investigating QOL in patients with schizophrenia have reported some important factors, such as unmet needs and social support (4). However, it should be noted that QOL and culture have a proven relationship, which should be considered when delivering health care by physicians and nurses (5). Therefore, determining the QOL of patients with schizophrenia in a different culture is essential and may help to provide more effective interventions to improve the performance, satisfaction, and well-being of patients (6).

Assessment of the QOL is increasingly performed as an efficient method to assess the quality of care provided for patients with schizophrenia (7). Researchers believe that the QOL assessment performed by patients themselves is more affected by the symptoms of depression and mental illness, and an evaluation by specialists appears to be related to clinical variables, including the negative symptoms of schizophrenia (8). Some researchers considered QOL as a subjective matter, whereas others considered QOL as an objective affair. However, it seems that objective methods may provide more reliable outcomes because their results remain uncontaminated from cognitive disruption and mood states (9).

Regarding preparing a guide for better management and finding interventions that improved the functioning of patients as well as reduced their disability due to illness, it is necessary to assess psychological, interpersonal, and sociocultural factors that had an impact on the life. Therefore, we performed this study to evaluate and quantify the QOL of remitted patients who have schizophrenia referred to Roozbeh Hospital in Tehran, Iran. Most studies of QOL have been conducted in developed countries. A similar study confirmed poor QOL in patients with schizophrenia despite their significant improvement with pharmaceutical treatment (10). This study was carried out to objectively assess different domains of Quality-of-Life Scale (QLS) in a group of Iranian remitted patients with schizophrenia and their correlations with some demographic and clinical factors.

Materials and Methods

Study population

The study population consisted of 85 remitted patients with schizophrenia referred to the outpatient clinic of Roozbeh Hospital, from both genders, based on the DSM-IV-TR diagnostic criteria in the clinical interview. All the participants were between 18 and 65 years of age, and Speaking Farsi as their native language. Additionally, written informed consent was obtained from the patients and their families. The exclusion criteria were unwillingness to participate in the study; behavioral disturbances, communication or language problems that the patient could not participate in the interview, such as intellectual disability or severe dementia, severe symptoms of acute psychosis and severe agitation; and presence of any extrapyramidal symptoms during physical examination. All the participants were evaluated in terms of the severity of their depression using the Hamilton Depression Rating Scale (HDRS). Due to the effect of depression on the QOL, patients with the Hamilton Depression Rating Scale less than 7 score were enrolled (11). Regarding the use of various medications, for those taking typical or atypical antipsychotics, medication intake was recorded according to the equivalent dose of haloperidol or risperidone, respectively. For patients taking benzodiazepines, medication intake was recorded according to the equivalent dose of lorazepam, and for anticholinergics, the equivalent dose of biperiden was recorded.

Data collection tools

Data were collected using the QLS and the HDRS (12). The interviewer was a trained psychiatric resident who was familiar with the QLS questionnaire.

Several tools have been suggested to assess the QOL of patients with schizophrenia objectively. Among the questionnaires, the QOL scale questionnaire, which is based on semi-structured interviews and is more specific than the negative symptoms, was used in this study (13). The QLS is a commonly used tool to assess the QOL and psychopharmacological therapies for schizophrenia. This scale has 21 semi-structured questions with seven points (0-6) for each question, which is completed through semi-structured interviews across four domains: intrapsychic foundations, interpersonal relations, instrumental roles and objectives and activities (common objects and activities). Each question consists of three parts. At first, a brief statement is provided to help the interviewer understand the main parameter measured. Then, several suggested questions are asked to help the interviewer begin exploring the subject. Finally, a seven-point scale with four answer choices for each item was used to assist the interviewer in scoring. For all the items, zero was the lowest, and six was the highest score. This questionnaire aimed to assess the limitations of psychopathology or personality deficits. In cases where irrelevant factors are involved (such as when social communication is reduced due to severe physical illness), the questioner needs to make specific changes or adjustments (14). The QLS is sensitive to change and is clinically relevant. Measures of Cronbach's alpha of 0.92 and inter-rater reliability of 0.99 were achieved for the total items of the QLS (15). Masoomi *et al* reported Cronbach's alpha for the QLS subscales ranging from 0.43 to 0.95 in an Iranian sample of schizophrenic patients (16).

HDRS is a multiple-item questionnaire used to indicate depression, and as a guide to evaluating recovery. The patient is rated by a clinician on 24 items scored either on a three-point or five-point Likert-type scale, and a score of 0-7 is considered to be normal which was one of the exclusion criteria for this study (17). The specificity and sensitivity were reported to be 92 and 62.4%, respectively. The correlation between this scale and Beck's depression scale in Iranian samples was 0.55, and its inter-rater reliability was 0.95 (18).

Ethics approval

This research has been approved by the ethics committee at Tehran University of Medical Sciences (code number 9311286016). All the participants provided informed consent after explaining the study purpose, and assuring confidentiality. All the participants' information remained confidential, and a code was used to record the data.

Statistical analysis

The mean (±standard deviation) and percentage were reported for descriptive data. At first, normality was checked through Kolmogorov–Smirnov test, and the log-transformation method was used for each variable with no normal distribution. Then, multiple linear regression was conducted to predict the QLS total score and its subscales from medications used. In the next step, multivariate analysis through a generalized linear model was conducted to compare the subscales' scores between the subgroups of gender, education, occupation, marital status, and family history, considering the Bonferroni test as the post hoc test. An independent t-test was used to compare the QLS total score between the subgroups of gender, occupation, and family history. Furthermore, to compare the QLS total score between the subgroups of education and marital status, one-way analysis of variance (ANOVA) was administered, considering the Bonferroni as the post hoc test. Finally, the Pearson correlation test was administered to examine the relationship between the duration of illness/treatment and the QLS total score and its subscales. Statistical significance was set at a p-value less than 0.05. Analyzes were conducted by Statistical Package of Social Science (SPSS, version 21, IBM corp., USA).

Results

Table 1 shows the baseline characteristics of the study participants. The mean age of the participants was 37.81±9.92 years, with the majority male (54 males). The mean score of the HDRS for depression was 2.54±1.73. Table 2 indicates the total and subscale scores of the QLS for patients with schizophrenia. As shown, the total score of this scale for patients is 2.950.93±, which is an impoverished QOL for patients with schizophrenia. Among the subscales, interpersonal relations and intrapsychic foundations were of lower quality than other domains. Furthermore, table 3 demonstrates the mean and standard deviation of the scores obtained for each item

Table 1. Demographic data of the study participants, patients with schizophrenia (n=85)

Variable		Mean (SD)	Frequency	Percentage
	Age (year)	37.81 (9.92)	85	
Gender	Male		54	63.53
	Female		31	36.47
Marital status	Married		16	18.80
	Single		60	70.60
	Divorced/separated		8	9.40
	Widowed		1	1.20
Occupation	Employee		19	22.40
	Unemployed		41	48.20
	Disabled		4	4.70
	Retired		3	3.50
	Housekeeper		18	21.20
Housing status	Owner		61	71.80
	Renting		24	28.20
Education	Elementary school		11	12.90
	Middle school		17	20.00
	High school		47	55.30
	Associate degree or Higher		10	11.80

Table 2. Quality of life scores in patients with schizophrenia (n=85)

Variable (QLS subscales)	Mean (SD)
Interpersonal relations	2.44 (1.10)
Instrumental role	3.60 (0.99)
Intrapsychic foundations	2.90 (1.07)
Common objects activities	3.89 (1.28)
QLS total	2.95 (0.93)

Table 3. Mean and standard deviation of Quality-of-Life Scale scores in patients with schizophrenia (n=85)

Item	Mean (SD)
1. Close relationship with family members	4.22 (1.75)
1. Close relationship with family members: Living alone, no first-degree relative	3.87 (1.39)
2. Close relationships	1.33 (1.76)
3. Active acquaintances	1.48 (1.42)
4. Level of social activity	1.81 (1.25)
5. Involved in social network	2.45 (1.18)

Cont table 3

6. Social initiatives	1.72 (1.32)
7. Social withdrawal	2.78 (1.44)
8. Socio-sexual relations	3.76 (3.83)
8. Socio-sexual relations: If it is difficult to evaluate because of religious-cultural beliefs or homosexuality	1.53 (1.20)
9. Extent of occupational role functioning	2.38 (1.30)
10. Level of accomplishment	2.15 (1.12)
11. Degree of underemployment	2.22 (1.73)
12. Satisfaction with occupational role functioning	7.65 (2.52)
12. Satisfaction with occupational role functioning not applicable if patient not involved in any occupational role functioning	2.36 (1.61)
13. Sense of purpose	1.76 (1.54)
14. Degree of motivation	2.66 (1.41)
15. Curiosity	2.18 (1.58)
16. Anhedonia	2.41 (1.46)
17. Time utilization	2.31 (1.51)
18. Commonplace objects	4.45 (1.50)
19. Commonplace activities	3.34 (1.28)
20. Capacity for empathy	4.11 (1.27)
21. Capacity for engagement and emotional interaction with interviewer	4.89 (1.02)

Table 4. Comparing the scores of the QLS subscales among different groups of the demographic variables in patients with schizophrenia

Dependent variable	Independent variable	Mean (SD)	Statistics	p-value
	Gender			
Interpersonal relations	Female	2.59 (1.07)	t=0.90	0.366
	Male	2.36 (1.14)		
Instrumental role	Female	4.16 (0.77)	t=3.33	0.001
	Male	3.34 (0.89)		
Intrapsychic foundations	Female	3.18 (1.04)	t=1.47	0.143
	Male	2.77 (1.06)		
Common objects activities	Female	3.96 (1.34)	t=0.22	0.823
	Male	3.87 (1.26)		
QLS total	Female	3.17	t=1.66	0.099
	Male	2.82		
Education				

Cont table 4

Interpersonal relations	Illiterate or primary school	2.18 (0.72)	F=6.26	0.001
	Secondary school	1.83 (0.92)		
	High school	2.49 (1.02)		
	Associate or higher	3.35 (1.37)		
Instrumental role	Illiterate or primary school	3.86 (0.62)	F=2.97	0.037
	Secondary school	3.23 (0.80)		
	High school	3.52 (1.07)		
	Associate or higher	4.30 (0.90)		
Intrapsychic foundations	Illiterate or primary school	2.50 (0.74)	F=7.29	0.001
	Secondary school	2.46 (0.89)		
	High school	2.88 (1.07)		
	Associate or higher	4.15 (0.73)		
Common objects activities	Illiterate or primary school	3.04 (1.40)	F=7.93	0.001
	Secondary school	3.44 (1.02)		
	High school	3.95 (1.20)		
	Associate or higher	5.30 (0.38)		
QLS total	Illiterate or primary school	2.69 (0.61)	F=8.30	0.001
	Secondary school	2.46 (0.78)		
	High school	2.95 (0.88)		
	Associate or higher	4.06 (0.82)		
		Marital status		
Interpersonal relations	Married	2.09 (0.59)	F=2.82	0.044
	Single	2.65 (1.20)		
	Divorced/separated	1.75 (0.79)		
	Widow	1.25 (0)		
Instrumental role	Married	3.76 (0.90)	F=0.73	0.536
	Single	3.67 (0.97)		
	Divorced/separated	3.18 (0.71)		
	Widow	3.00 (0)		
Intrapsychic foundations	Married	2.84 (0.80)	F=2.79	0.046
	Single	3.06 (1.11)		
	Divorced/separated	1.92 (0.72)		
	Widow	3.57 (0)		
Common objects activities	Married	3.68 (1.53)	F=1.39	0.250
	Single	4.06 (1.20)		
	Divorced/separated	3.31 (1.25)		
	Widow	2.50 (0)		
QLS total	Married	2.81 (0.60)	F=2.39	0.075
	Single	3.09 (0.99)		
	Divorced/separated	2.23 (0.63)		
	Widow	2.47 (0)		
		Occupation		
Interpersonal relations	Employed	2.78 (1.28)	F=1.11	0.357
	Unemployed	2.41 (1.18)		
	Disabled	1.59 (0.91)		
	Retired	2.20 (0.85)		
	Housekeeper	2.37 (0.74)		

Cont table 4

Instrumental role	Employed	3.63 (1.22)	F=3.83	0.007
	Unemployed	3.42 (0.72)		
	Disabled	2.93 (1.28)		
	Retired	3.41 (0.52)		
	Housekeeper	4.30 (0.69)		
Intrapsychic foundations	Employed	3.27 (1.16)	F=1.85	0.126
	Unemployed	2.70 (1.05)		
	Disabled	2.21 (0.77)		
	Retired	3.52 (0.92)		
	Housekeeper	3.07 (0.99)		
Common objects activities	Employed	4.26 (1.09)	F=1.12	0.353
	Unemployed	3.83 (1.35)		
	Disabled	4.50 (0.70)		
	Retired	4.16 (1.44)		
	Housekeeper	3.50 (1.36)		
QLS total	Employed	3.25 (1.06)	F=1.27	0.288
	Unemployed	2.81 (0.94)		
	Disabled	2.33 (0.75)		
	Retired	3.06 (0.68)		
	Housekeeper	2.95 (0.93)		
Home status				
Interpersonal relations	Owner	2.37 (1.09)	t=0.86	0.390
	Renting	2.63 (1.18)		
Instrumental role	Owner	3.52 (0.97)	t=1.02	0.307
	Renting	3.95 (0.75)		
Intrapsychic oundations	Owner	2.80 (1.11)	t=1.32	0.190
	Renting	3.24 (0.88)		
Common objects activities	Owner	3.84 (1.30)	t=0.61	0.540
	Renting	4.06 (1.25)		
QLS total	Owner	2.89 (0.95)	t=1.18	0.238
	Renting	3.16 (0.86)		
Family history				
Interpersonal relations	No	2.35 (1.15)	t = 1.02	0.307
	Yes	2.62 (1.03)		
Instrumental role	No	3.48 (1.01)	t = 2.60	0.011
	Yes	3.93 (0.68)		
Intrapsychic foundations	No	2.74 (1.09)	t = 2.22	0.029
	Yes	3.26 (0.94)		
Common objects activities	No	3.75 (1.27)	t = 1.53	0.128
	Yes	4.19 (1.27)		
QLS total	No	2.81 (0.96)	t = 1.98	0.050
	Yes	3.23 (0.80)		

Table 5. Relationship between current medication doses used by patients with schizophrenia and Quality of Life Scale (QLS) scores

Medication/QLS domain	Standardized coefficients (β)	t	p-value	R^2
Interpersonal relations				
Typical antipsychotics (Haloperidol equivalent)	-0.150	-1.213	0.229	0.048
Atypical antipsychotics (Risperidone equivalent)	0.011	-0.98	0.923	
Anticholinergics (Biperiden equivalent)	-0.074	-0.619	0.538	
Benzodiazepines (Lorazepam equivalent)	-0.112	-1.015	0.313	
Instrumental role				
Typical antipsychotics (Haloperidol equivalent)	-0.311	-2.659	0.009	0.145
Atypical antipsychotics (Risperidone equivalent)	-0.315	-2.908	0.005	
Anticholinergics (Biperiden equivalent)	0.034	0.298	0.767	
Benzodiazepines (Lorazepam equivalent)	-0.101	-0.970	0.335	
Intrapsychic foundations				
Typical antipsychotics (Haloperidol equivalent)	-0.158	-1.305	0.196	0.084
Atypical antipsychotics (Risperidone equivalent)	-0.133	-1.187	0.239	
Anticholinergics (Biperiden equivalent)	-0.134	-1.150	0.253	
Benzodiazepines (Lorazepam equivalent)	-0.157	-1.453	0.150	
Common objects activities				
Typical antipsychotics (Haloperidol equivalent)	-0.097	-0.776	0.440	0.027
Atypical antipsychotics (Risperidone equivalent)	0.049	0.428	0.670	
Anticholinergics (Biperiden equivalent)	-0.079	-0.656	0.514	
Benzodiazepines (Lorazepam equivalent)	-0.010	-0.093	0.926	
QLS total				
Typical antipsychotics (Haloperidol equivalent)	-0.205	-1.687	0.096	0.076
Atypical antipsychotics (Risperidone equivalent)	-0.018	-0.15	0.878	
Anticholinergics (Biperiden equivalent)	-0.104	0.922	0.359	
Benzodiazepines (Lorazepam equivalent)	-0.133	-1.227	0.224	

of the QLS. The duration of illness of 85.7% of the patients with schizophrenia was more than five years. Moreover, the duration of treatment for 73.8% of the patients with schizophrenia was more than five years. According to correlation analyses based on Pearson test, there was no significant relationship between age, duration of illness or treatment and any of the QLS domains ($p>0.05$). Table 4 shows that female patients had a higher QLS score in the instrumental role domain ($t=3.33$, $p<0.001$). However, there was no significant difference between the gender groups (male and female) in other domains as well as the total score of QLS ($p>0.05$) (Table 4). There were significant relationships among the education levels in the patients with schizophrenia and the four domains of QLS (Table 4). Post-hoc analysis revealed that patients with an Associate or higher degree level of education experienced a better QOL compared to those with the lower education levels (Table 4). Post-hoc analyses indicated that single patients had a better score in interpersonal relationships and intrapsychic foundations domains of QLS than the

other groups of patients (Table 4). Also, housekeeper patients scored higher in the instrumental role domain of QLS compared to other groups (Table 4). Patients with positive family history showed higher score in instrumental role and intrapsychic foundations domains of QLS (Table 4). However, there was no significant relationship between home status and different domains of QLS in patients with schizophrenia. Table 5 demonstrates relationships between current medication doses used by the patients with schizophrenia and QLS domain scores. There was no significant relationship between current doses of various medications and any QLS domain scores; however, a significant inverse relationship was found between the current doses of first- and second-generation antipsychotics and the instrumental role domain score.

Discussion

The QOL concept in patients with chronic mental illness differs from that used to describe healthy individuals. Research on QOL for patients with schizophrenia and other severe psychiatric disorders has consistently reported that mental illnesses negatively impact QOL. It is known that depression symptoms can significantly deteriorate the QOL (15). Therefore, we examined the QOL of the remitted patients with schizophrenia without prominent depressive symptoms in the present study.

The findings of this study showed low QOL of individuals with schizophrenia regardless of depression. Patients acquired low scores for all QOL domains, and the least score was for the interpersonal relations domain. This domain relates to different aspects of social interactions and interpersonal relationships. It is shown that patients with schizophrenia are often subjected to discrimination in the community and usually have poor social functioning (4). In line with previous studies, the findings of the present study demonstrated lower scores for the interpersonal and intrapsychic domains. It may be attributed to impairment in social interactions, social cognition, and insight in schizophrenia (19,20). Ayenalem *et al* reported low scores on the social relationship domain of QOL among patients with schizophrenia. This finding could be due to the negative symptoms, which affect the patient's ability to be independent, to do activities of daily living, to be socially active and to keep personal relationships (21). Therefore, it seems that the investigation of the psychopathological dimensions of schizophrenia at the theoretical, basic, or clinical levels should be accompanied by considering social and interactional factors.

Different studies reported different results regarding the association between educational status and quality of life. A high level of education often has a low frequency in patients with schizophrenia (22). Evidence shows that education may greatly impact an individual's health, income level, and occupational status (23). However, in a study conducted by Jamali *et al*, the quality of life in patients with schizophrenia revealed no significant relationship with education (24); our results indicated that the Bachelor's degree level of education or higher had a significant correlation with the QLS domains. Caron *et al* described that the increased well-being and quality of life in people with schizophrenia were associated with higher levels of education (25). Another study found that people with schizophrenia who are unable to read and write are more likely to have a poor QOL compared to others with higher education degrees, which is consistent with our findings (26). Other studies have also reported a link between educational level and QOL in schizophrenia, whereby higher educational level was correlated to better adaption to social functioning, better psychopathological state in the illness evolution, and higher satisfaction with life (27,28). However, the literature on the relationship between QOL and low education in schizophrenia is contradictory. In low- and middle-income countries, patients with higher levels of education seem to experience a worse QOL (20). In general, providing a suitable condition for increasing the level of education in patients with schizophrenia may be a protective factor for QOL.

Although the medications often improve the symptoms over time, discontinuation of treatment occurs due to intolerable side effects. We examined patients in terms of extrapyramidal drug side effects, and those with such side effects were not included. Other side effects such as oversedation, and medical comorbidities such as weight gain, and metabolic syndrome may affect compliance, and consequently,

QOL in schizophrenia (29). Antipsychotics have a wide range of adverse effects that may affect the QOL of patients with schizophrenia and their compliance with treatment (30). In our study, current medication dosages showed no significant correlation with most domains of QLS. However, we found an inverse correlation between the doses of antipsychotics and the score of instrumental role domain. Our results are in line with previous studies showing that chronic use of antipsychotics in schizophrenia increases feelings of difficulty in social situations (31,32). Yen *et al* reported that patients with schizophrenia receiving atypical antipsychotics were more dissatisfied with their QOL than those receiving no atypical antipsychotics (33). A study assessed the side effects of antipsychotic treatment on the QOL of 161 schizophrenia inpatients stabilized with typical and atypical antipsychotics. Patients who experienced adverse events reported significantly less satisfaction with subjective feelings and general activities than patients who did not experience adverse events (34). However, contradictory results regarding the effects of typical and atypical antipsychotics on the QOL of patients with schizophrenia have been reported in the literature. Several studies have shown that there is no significant relationship between atypical antipsychotics and QOL in patients with schizophrenia, or that typical antipsychotics have a greater negative impact on the QOL of these patients than atypical antipsychotics. Such a finding in these studies is mainly attributed to the higher incidence of adverse effects involving extrapyramidal symptoms. Therefore, the discrepancy between our results and these studies seems reasonable due to the exclusion of patients with extrapyramidal complications from our study (3,35,36).

Previous studies have demonstrated that patients who owned their houses had better access to opportunities and resources to improve their QOL than those living in institutions (37). In our study, all patients either owned their houses or were renting, and thus, it may be concluded that they had good financial status and no one was homeless. Therefore, this may be why no significant relationship was found between the QOL domains and housing status in the present study. On the other hand, unlike most previous studies, which show that employment correlates with better QOL in schizophrenia (28,38), the present study revealed that only housekeeping was related to better QOL. Probably the reason for this finding should be sought in the relationship between gender and QOL in patients under study because this study represented that the female gender associates with better QOL in the instrumental domain, a result that the previous studies have reported (39). Since all housekeepers were female and 60% of the female patients were housekeepers, it was expected that these two variables (*i.e.*, gender and occupation) would have a similar relationship with QOL.

Contradictory findings have also been published in the literature on the relationship between age and QOL in patients with schizophrenia. In general, most studies find no significant relationship between age and QOL (40,41). In contrast, some studies have reported significant relationships between age and QOL by limiting the age range of patients (42,43). For example, Bankole *et al* found that patients with schizophrenia aged 55 years and older had lower QOL scores (44). Another study demonstrated that young patients had better QOL (3).

Limitations and suggestions for the future research

The results of this study should be interpreted considering some limitations. The current study evaluated the remitted patients in an outpatient setting in Roozbeh Hospital and cannot be generalized to the entire population of schizophrenia patients. We did not assess the severity of positive and negative symptoms of schizophrenia and the effect of different antipsychotic medications as independent factors. Furthermore, the current results must be interpreted with caution due to the cross-sectional nature of the study, as only associations and not causalities can be examined.

Therefore, future longitudinal research with large sample sizes is needed to explain the relative predictive power and mutual effects of various components of general psychopathology and socio-demographic factors on QOL in schizophrenia, as well as comprehending the processes by which such factors affect QOL. Investigating these matters will provide valuable data regarding the determining factors in QOL in schizophrenia and direct to the procedures that can be used to assist these patients to lead more satisfying lives.

Discussion

This study indicated poor QOL in remitted patients with schizophrenia. Generally, there was a positive association between higher educational levels and QOL in schizophrenia. It would be helpful to objectively evaluate the QOL of patients with schizophrenia, particularly in clinical trials and longitudinal natural studies.

Ethical Consideration

This paper is a secondary analysis of the study approved by the ethics committee of Tehran University of Medical Sciences (code number 9311286016). All the participants provided informed consent after explaining the study purpose and assuring the confidentiality.

Conflict of Interest

There was no conflict of interest for the authors in this study.

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