Quality of life of people with schizophrenia compared to controls: A case-control study

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Research note

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Abstract

Objective: purpose of this study was to compare the quality of life of people with schizophrenia to healthy controls. Results: the present study demonstrated that respondents with schizophrenia have significantly lower scores in Physical component summary (U=70.5, z=-8.695, p<..001, r=-.734), mental component summary (U=79.0,z= -8.634 p<.001, r=-.730), Physical functioning (U=310, z-9.553, p<.001, r=-.808), Role Physical (U=419, z=-8.975, p<.001, r=-.759), Body pain (U=1395.5, z=-3.501, p<.001, r=-.296), General health (U=320,z=-7.514, p<.001, r=-.635), Vitality (U=353, z=-7.398, p=.001, r=-.625), Social functioning (U=213.5, z=-9.398, p<.001, r=-.794), Role emotion (U=144.5, z=-985, p<.001, r=-.844) and Mental health (U=178, z=-8.199, p<.001, r=-.693) compared with healthy controls. Key words: Quality of life, Schizophrenia, Controls, Case-Control

Introduction

World Health Organization as cited in Sabbah et al[1] defines quality of life as '*an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, and concerns'*. Quality of life has been identified to be an important independent predictor of relapse and rehospitalisation on people with schizophrenia (2).

Several studies in developed countries have reported that people with schizophrenia have lower quality of life than the general population (3, 4). On his study, Song[5] had demonstrated there was poor quality of life among people with schizophrenia than healthy controls. Kurtz[6] also found that insight to illness, neuro-cognition and depressive symptoms were inversely related to the quality of life of people with schizophrenia.

Quality of life of people with schizophrenia can be further worsened due to co-morbidities of other psychiatric disorders and substance misuse (5). In Nigeria, 100 people with schizophrenia were screened for the presence of depression during the course of schizophrenia, and their quality of life was compared based on their depression status. According to this study, depression occurred on 27% of people with schizophrenia and the quality of life of these schizophrenia patients was considerably affected as compared to those who do not have depressive symptoms(7).

Misuse of mind-altering substances like alcohol and other drugs of abuse alone can affect users' quality of life (8). For example, a longitudinal study which was done in Norway has reported that majority (59%) of respondents with substance use disorder had seriously impaired quality of life with a score of less than 0.55 of QoL-5 scale (9). For the most part, when this misuse of mind-altering substance co-occurs with severe mental health problems like schizophrenia, quality of life of individuals will be amplified to the worst level (10). However, robust information on the quality of life of schizophrenia patients compared to healthy controls and on the combined effect of dual diagnosis of severe mental health problems and drug/substance misuse on quality of life is insufficient in Ethiopia. The present study is required to focus on filling this knowledge gap.

Methods And Materials

Unmatched case-control study was conducted from 01 January 2016 to 30 December 2016 at Adare General Hospital, Southern Ethiopia. Respondents were 18 to 50 years old that do not have a diagnosis of medical or other psychiatric disorders and mental retardation. '*Cases'* were respondents that have a clinical diagnosis of schizophrenia. *Controls* were relatives, friends or care-givers of schizophrenia patients that visit the hospital during the study period. Sample size was calculated using Epi-Info/StatCalc version-7 with the following assumptions; significance level α = 0.05, power = 80%, Odds Ratio = 3, case ratio controls = 1:3 and 29.9% was the proportion of controls with substance exposure. The sample size was found to be 142 respondents; with 36 cases and 106 control. However, 10% of non-response rate was added to maximize the power and 157 (40 cases and 117 controls) was the final sample size of this study. All existing cases and their relatives, friends and caregivers who visited psychiatric clinic during the study period were invited to participate in the study.

Eligibility criteria for cases and controls

All respondents were expected to be in the age group 18 to 50 years with no mental retardation and chronic medical illness (like; hypertension, diabetes mellitus, heart diseases or others). Cases were those with clinical diagnosis of schizophrenia and without Comorbidity to other psychiatric illnesses; while controls were their relatives, friends or caregivers with no history of diagnoses to any psychiatric illnesses.

Data Collection Procedure and Tools

Trained research assistants have collected primary data on demographic and quality of life of respondents through interview. Referring different standard tools like World Health Organization STEPWISE, the researcher has developed a tool for respondent's socio-demographic data. However, SF-36 health survey was used to collect data on quality of life (11). SF-36 health survey is standardised 36 items questionnaire that were translated, adapted and validated in Ethiopian language (13). This health survey questionnaire assesses generic health-related quality of life. It includes physical and mental component summaries and eight specific health domains. The first four domains comprise the physical component summary, while the other four comprises the mental component summary. 1) Physical Functioning is 10 items that assesses both the presence and extent of physical limitations. 2) Role Physical is 4 items that measures role limitation owing to physical problems. 3) Bodily Pain is two items domain; one item is relevant to the intensity of body pain, while the second item is relevant to the extent of interference with work or normal activities due to body pain. 4) General Health is five items; one item rates health from *excellent* to *poor* and four items address respondent's view and expectations of their health. 5) Vitality is four-item domain and measures energy level and fatigue to capture differences in subjective well-being. 6) Social Functioning is two-item domain assesses impact of either physical or emotional problems on respondents' social functioning and the degree to which physical or emotional problems interfere with normal social activities. 7) Role Limitation is three-item domain that assesses health-related role limitations due to emotional problems. 8) Mental health is five-item domain that

includes items from the four major mental health problems (anxiety, depression, loss of emotional control and psychological wellbeing). Scores on each domain-specific scales range from zero to 100. Higher score represents better health related quality of life and lower scores reflect poor quality of life (11).

Validity and Reliability

Validity is the ability of a tool to measure what it should and reliability is the ability of a tool to produce consistent results (12). To reduce threats to content validity, SF-36 was adapted and a forward-backward translated in to local language (Amharic) following the steps set by the developers. Finally, translations were reviewed to determine whether the content of the questionnaire had appropriately addressed the research objectives. The overall reliability of the instrument (SF-36) was tested using Cronbach's alpha during the pre-test and it was found to be 0.89, which exceeds the acceptability threshold (alpha, 0.70).

Data Analysis

Collected data were entered to computer software SPSS v23 program and were coded, checked and cleaned for errors and prepared for analysis. Tables were used to summarise and describe variables. *Median* was used for the comparison of age between cases and controls and, median and percentiles were used to summarise scores of quality of life between cases and controls. While *mean rank* was used to compare the difference in scores of Quality of Life between cases and controls. Mann-Whitney U test and Kruskal-Wallis 1-way ANOVA were used to test score differences in quality of life between cases and controls and among different age groups and among respondents with different educational backgrounds respectively.

Ethical clearance

Ethical clearance was obtained from University of South Africa Health Studies Higher Degrees Committee and necessary approval letters were obtained from responsible bodies like, Dilla University Research and Dissemination Office, Southern Nation Nationalities and Peoples' Regional Health Bureau and from officials of Adare General Hospital. Informed consent was signed from respondents before data collection.

Results

From the total sample, 37 cases and 103 controls were included in the analysis with a response rate of 92.5% and 88.03% for cases and controls respectively. This response rate is significantly close to the sample required by power calculator which was 36 and 106 for cases and controls.

Demographic descriptions

Table-1.1 *Demographic characteristics of respondents at Adare General Hospital, Southern Ethiopia, (N=140)*

Demographic Information		Count	Percent (%)
Age (yrs)	≤ 30	75	53.6
	> 30	65	46.4
	Total	140	100
	Mean age=31.3, SD=8.24		
Gender	Female	39	27.9
	Male	101	72.1
Ethnicity	Sidama	79	56.4
	Others[a]	61	43.6
Marital status	Married	73	52.1
	Single[b]	67	47.9
Education	No/Elementary school[c]	72	51.4
	Secondary or Above[d]	68	48.6
Religion	Muslim	12	8.6
	Christian	128	91.4
Occupation	Employed	86	61.4
	Unemployed	54	38.6

***Key**: **a**= Oromo, Gurage, Amhara, Welayta, Kembata and Tigray; **b**=unmarried, separated, divorced & widowed; **c**= illiterate or grade 1 to 8; **d** = grade 9 – 12 to College/University*

Respondent of this study have an average age of 31.3 years 8.24 years and most (72.1%) of them were male in gender. More than half of the respondents were married and sidama their ethnicity. Almost all respondents were Christian religion and around 38.6% were unemployed, see Table-1.1.

***Table-1.2:** Comparison of scores of SF-36 health survey between cases and controls at Adare Hospital, Southern Ethiopia (N=140).*

SF-36 Domains and CS	*Mean Rank*		*U*	*Z*	p-value	*r*
	Cases (N=37)	Controls (N=103)				
Physical Component Summary	20.91	88.32	*70.5*	*-8.685*	*<.001*	-.734
Mental Component Summary	21.14	88.23	*79.0*	*-8.634*	*<.001*	*-.730*
Physical Functioning	27.38	85.99	*310*	*-9.553*	*<.001*	*-.808*
Role Physical	30.32	84.93	*419*	*-8.975,*	*<.001*	*-.759*
Body Pain	56.72	75.45	*1395.5*	*-3.501*	*<.001*	*-.296*
General Health	27.65	85.89	*320*	*-7.514,*	*<.001*	*-.635*
Vitality	28.54	85.57	*353*	*-7.398*	*<.001*	*-.625*
Social Functioning	24.77	86.93	*213.5*	*-9.398,*	*<.001*	*-.794*
Role Emotion	22.91	87.60	*144.5*	*-9.985,*	*<.001*	*-.844*
Mental Health	23.81	87.27	*178*	*-8.199,*	*<.001*	*-.693*

*CS: Component Summaries; **U**: Mann-Witney U; **z**: standardized test statistics, **r**: Effect size*

In Table-1.2 above, cases have demonstrated significantly lower scores in all specific health domains and the two component summaries than controls. For instance, scores of quality of life in physical

component summary (*U=70.5, z=-8.685, p<.001, r=-.73*) and Body Pain (*U=1395.5, z=-3.501, p<.001, r=-.296*) were significantly lower in cases than controls, see Table-1.2.

Discussions And Conclusions

People with schizophrenia were younger, single and less educated when compared to healthy controls. This study also showed that respondents with schizophrenia have significantly lower scores of quality of life in all the two component summaries and eight health domains than healthy controls. This indicates that treatments of schizophrenia in developing countries, particularly in Ethiopia, are more focusing on symptomatic relieves ignoring the quality of life. Findings of the present study were similar with other studies. Song et al[5] has demonstrated that people suffering from schizophrenia had poor quality of life when compared to healthy controls. Similarly, another study in Ethiopia has reported that there were considerably low scores of quality of life among schizophrenia patients when compared to the general population (13).

Researchers need to repeat this study with higher sample size and matched case-control study design to confirm the findings. Clinicians are also recommended to design and test other comprehensive treatment models that can have good treatment outcomes in reducing clinical symptoms and improving quality of life of schizophrenia patients in Ethiopia.

Limitations Of The Study

This study has tried to compare homogenous case and control groups by restricting age of cases and controls to be between 18 to 50 years, selecting controls from close associates of patients and by excluding possible causes of poor quality of life like chronic medical and psychiatric (other than schizophrenia) illnesses. However, cases and controls were not matched for demographic variables in this study and this may influence the quality of life individuals. All limitations for case-control study design are also true for this study.

Declarations

Ethical approval and consent to participants

Ethical approval for this study was obtained from University of South Africa Health Studies Higher Degrees Committee (with reference number HSHDC/453/2015) and necessary approval letters were obtained from responsible bodies. Informed consent was signed from respondents before data collection was started.

Consent to publication

Not applicable

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interest

I confirm that all authors have approved the manuscript for submission and they do not have any financial or non-financial competing interest. I want also to assure that any changes to authorship will not be made after the acceptance of the manuscript.

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Authors' contribution

Abraha G Woldemariam has participated in conducting the study, writing up the report, and preparation of the manuscript. Hafto Desta Kahsay has participated in the preparation and editing of the manuscript.

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