



Sociodemographic and Quality of Life of Patients with Obsessive Compulsive Disorder: A Comparison within Saudi Arabia's Population

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors equally contributed to the development of this paper. Both authors read and approved the final manuscript.

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ABSTRACT

Background: Obsessive Compulsive Disorder (OCD) is a chronic and disabling condition that negatively affects quality of life (QoL) of patients with this disorder attributable to sociodemographic, clinical and illness-specific factors. However, findings vary across studies that have explored sociodemographic and QoL of patients with OCD compared to control group or patients with other mental disorders.

Objective: This cross-sectional study aimed to analyze the sociodemographic and comparatively assess QoL of patients with OCD and community dwellers with no diagnosis of OCD.

Method: Sixty patients with diagnosed OCD and seventy six people without OCD were selected from different clinical and community settings, respectively. A semi-structured proforma was used for the collection of sociodemographic variables and World Health Organization QOL-BREF (WHOQOL-BREF) scale for the assessment of the subjective QoL of both groups.

Results: Male gender, lower education and unemployment were significantly associated with OCD and scores related to physical, psychological, social and environmental domains of WHOQOL-

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BREF were significantly lower in OCD group compared to control population. All grades of satisfaction levels differ significantly between sub-items of 3 domains of QoL of OCD group when compared to community dwellers but environmental domain sub-items did not differ between the two groups. The OCD group was not significantly dissatisfied across all four QoL domains when compared to control group.

Conclusion: The preliminary results of this study are partially comparable to international data on QoL of patients with OCD and call for a research with a larger sample in Saudi Arabia's community setting.

Keywords: Obsessive compulsive disorder; subjective quality of life; WHOQOL-BREF scale; Saudi Arabia.

1. INTRODUCTION

Over the past three decades, several studies identified the core principles of quality of life (QoL) and provided its multiple definitional facets; those attributes valued by patients, including their resultant comfort or sense of well-being; the extent to which they were able to reasonably maintain physical, emotional, and intellectual functions; and the degree to which they retain their ability to participate in valued activities within the family, in the workplace, and in the community [1]. In addition, World Health Organization (WHO) also offered a comprehensive definition of QoL, which subscribes to the individuals' perceptions 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 standards, and concerns [2]. Evidently, the concept of QoL - subjective as well as objective - has globally achieved an important place in research not only in physical diseases including old age and cancer but also in mental health problems [3-8]. The QoL and care also relates to health and healthcare [9] and this construct encompasses several defined domains: safety, timeliness, efficiency, effectiveness, equity, and patient-centered. As a corollary, the QoL is a multidimensional concept and researchers have explored several aforesaid issues including integrated global physical and mental health wellbeing in relation to diseases that afflict human population [10,11]. According to some researchers, QoL research complements clinical research [12] and has a bidirectional relationship. Furthermore, QoL construct has two principle components in terms of an individual's functional status and subjective determination of how their health impacts their life [13]. QoL research mainly explores subjective experiences of an individual's health and its impact on individual functioning. However, other researchers reported three major characteristics that are associated

with the QoL concept: QoL refers to individuals' life situations; QoL is a multi-dimensional concept and QoL is measured by objective as well as subjective indicators [14]. In an effort to further expand the concept of QoL, European QoL Survey considered six core issues related to QoL; employment, economic resources, family and households, community life and social participation, health and healthcare and knowledge, education and training [15]. According to some researchers, the QoL has four domains which are physical health, emotional health, social functioning, and general health. Each domain has subdomains: the physical health-role-physical, physical functioning and bodily pain and its measures include role limitations due to physical health problems: the emotional health domain-role-emotional and mental health and measures role limitation due to emotional problems; the social domain- a measure of social functioning as it is affected both by physical and mental health and the general health QoL domain- general health and vitality/energy [11]. Despite millennium challenges, QoL research is constantly advancing further supported by theoretical foundation [16].

With special reference to patients with OCD, QoL domains in terms of social relationships, work role functioning, and mental health perspectives are all decreased in patients with acute and chronic OCD but physical health is relatively less affected negatively by this disorder [3,17,18]. However, severe compulsions related to obsession of contamination result in multiple skin problems among patients with OCD [19,20]. In the past decade, researchers have focused more on assessing individual's subjective as well as objective experiences related to several QoL domains rather than exploring their traditional views of success and wellbeing [21]. Inquiry into QoL domains proved to be useful because several studies have showed association

between QoL and severe distress. Stress often worsens all domains of QoL in patients with OCD compared to those without OCD and all domains of QoL tend to improve with therapy [20,22-29]. Over one-third of adults with OCD are reported to be single and they struggle in their interpersonal relationships. Thirty percent of adults with OCD have difficulty in working and 62% report OCD-related problems at work. More than 90% of adults with OCD experience low self-esteem [12,30]. Evidently, obsessions and compulsions tend to impact QoL not only of patients with OCD but also their caregivers attributed both to the accommodation of relatives to OCD symptoms and its burden [31]. Possible contributors both to low QoL of OCD patients and their poor outcome may include the following: Severity, intrusion and interference of and resistant against OCD symptoms; delayed treatment seeking, types of OCD; early age of onset and long duration of illness; associated depression and other mental and physical disorders; and the number and types of OCD symptoms [17,20,23,29,30,32-38]. One study reported that functioning of patients with OCD is greatly impaired when little effort is made to resist and control OC symptoms [39]. Alternatively, when resistance against OCD symptom is quite strong that reflect both better functioning and QoL. Similarly, if OCD symptoms interference is less, better functioning in patients with OCD is projected. According to some researchers, Yale-Brown Obsessive-Compulsive (YBOC) Scale score ≤ 12 is the solo predictor of "wellness" in outcome studies of patients with OCD [38]. There is converging evidence that about 50% to 80% of patients with OCD respond to medication and psychotherapies [27,40] and have better QOL, but the 50% outcome shown in many studies is due to inclusion of dropout patients [41,42]. However, 30% to 50% reduction in symptoms of a mental disorder/OCD reflects good response to given treatment [43]. Residual symptoms of OCD are associated with decreased QOL [20]. Overall, beside the use of medications, partial hospitalization and psychotherapies, the role of symptom interference and resistance in patients with OCD has therapeutic implications [27,44,45]. Evidently, motivational components need to be incorporated in the treatment plan for those showing limited resistance against OCD symptoms [45]. But for those who display marked interference, treatment should dually focus on reducing symptom interference and at the same time re-engaging the person in suitable work activities and social tasks [46]. Furthermore, Moritz and associates reported that the number

of obsessions modestly predicts the outcome in patients with OCD [20]. Overall, both the symptoms of depression whether "primary or secondary to OCD" and the number of obsessions need to be assessed comprehensively in patients with OCD and pharmacological treatments and psychotherapies should target patients for better QoL and good clinical outcome [20,47-50]. Clinical wisdom suggests that some of them have highly unrealistic expectations, which are mostly not achieved and hence their QoL remains relatively unsatisfactory. Overtime improvement in QoL of patients with OCD with treatment or without it or diminished at follow-up due to placebo effect is shrouded in controversies due to the reported inconsistent results. As a corollary, QoL of patients with OCD and aforesaid predictors may not be directly related to each other [17,44,46,51].

There has been scant research on QoL among psychiatric patients in the Eastern world and QoL issue in patients with OCD has not been investigated in Saudi Arabia. Unlike Western world, only few publications from the Eastern world are available [24,26,27,52-55]. A summary of results of these studies is as follows: Both Egyptian and Saudi patients with OCD showed diminished QoL in all domains and cultural factors may modify the course and outcome of obsessive-compulsive disorder in both cultures [52]; all aspects of QoL are markedly affected in individuals with OCD, QoL scores improve with treatment and the changes in QoL scores over a period of six months are not necessarily correlated with corresponding changes in YBOCS scores indicative of symptom severity in OCD subjects [37,53]; similar studies did not find robust correlations between YBOCS scores and QoL scores changes [54] inconsistent with other studies [56]; and OCD causes significant morbidity, distress, and interference with academic, occupational, social and family function [55]. Certainly, there is a research gap on QoL of patients with OCD in the Eastern world.

2. OBJECTIVE

The aims of this study were: 1) to analyze comparatively the sociodemographic of patients with OCD and community control with no diagnosis of OCD, and 2) to assess the subjective QoL of patients with OCD and compare it with a control group, and for this purpose the WHO 26-item Quality of Life

Instrument (the WHOQOL – Bref-Arabic version) was used and is reported to have good reliability and validity [57].

2.1 Significance

The study would help clinicians to broaden their concept of disease outcome to include dimension of QoL of patients with OCD. The assessment of subjective experience of patients with OCD would further help clinicians to have more in-depth knowledge of patients' inner world and provide better treatment options including drug treatment, psychosocial therapies and partial hospital programs. Patients would have the opportunity to know about their subjective world rather than being evaluated objectively by clinician alone, which is rather unreliable. Most importantly, healthcare providers would be able to integrate therapeutic management measures with QoL experiences of patients with obsessive compulsive disorder in their clinical settings.

3. MATERIALS AND METHODS

3.1 Subjects and Setting

This cross-sectional study selected 60 patients with diagnosed OCD from the following clinical settings: 29 patients from the Outpatient Department (OPD) of King Fahd University Hospital (KFUH), 5 patients from Al-Amal Complex for Mental Health (ACMH) in Dammam, 17 patients from (ACMH) in Riyadh, and 9 patients from Specialized Psychiatry Clinic (SPC) in Riyadh. We obtained the permission to carry out this study from the responsible authorities of each hospital and clinical setting. The inclusion criteria for recruiting participants with OCD were as follows: Stable condition with no active obsessions and compulsions, both males and females, age from 18 - 60 years, and ascertained diagnosis of OCD according to DSM-IV-TR criteria [58]. The study excluded: a) participants with past history or evidence of schizophrenia, bipolar disorder, major depressive disorder, other affective disorders, organic mental disorder, seizure disorder and intellectual disability and b) participants with clinically significant and unstable renal, hepatic, cardiovascular, respiratory or cerebrovascular disease or any other serious and progressive physical disease. All participants voluntarily provided oral informed consent. The general population sample was composed of 76 participants from Riyadh and Dammam cities, who were randomly selected

from public places such as government ministries, educational institutions, and Quran memorization centers. These participants were consented voluntarily to participate in the study. The questionnaires were completed privately and in the presence of main investigator (Hissa Mesfir AlGhamdi) or research assistants who were available to clarify questions. All the completed questionnaires were collected by research assistants.

3.2 The WHO Quality of Life-BREF (WHOQOL-BREF)

This study used the WHO definition of QoL as individuals' perception of life in the context of their culture and value system in which they live and in relation to their goals, expectations, standards and concerns [59]. The main focus of this study was on subjective QoL rather than objective QoL. The participant's satisfaction was defined as the level of positive appreciation for each item. Each group's satisfaction was quantified with each item as at least 50% of participants in the group positively appreciating the item; dissatisfaction (< 50%); bare satisfaction (50 – 65%); moderate satisfaction (66 – 74%); and highest satisfaction ($\geq 75\%$) [22,60]. WHOQOL - Bref is a generic and short version of the World Health Organization Quality of Life –100 Scale (WHOQOL - 100) [2] that assesses the following broad domains: physical health, psychological health, social relationships, and environment [59]. The response options range from 1 (very dissatisfied/very poor) to 5 (very satisfied/very good). Assessments are made over the preceding two weeks. WHOQOL - Bref consists of domains and facets (or sub-domains) and widely field-tested. The items on "overall rating of QoL" (OQOL) and subjective satisfaction with health constitute the general facet on OQoL and health. The WHOQOL - BreF contains one item from each of the 24 facets of QoL included in the WHOQOL-100, plus two 'benchmark' items from the general facet on overall QoL and general health. The facets were originally subsumed within one of six domains but factor analysis of the WHOQOL-100 indicated that Domain 1 could be merged with Domain 3 (physical with independence), and Domain 2 with Domain 6 (psychological with spirituality, religion and personal beliefs) thereby creating four domains of QoL [61]. Similar results were found during the extraction of data for the WHOQOL-BreF [2] which is currently scored in four domains: Domain 1: Physical health, Domain 2: Psychological, Domain 3: Social

relations and Domain 4: Environment, with all facet items scored as part of their hypothesized domain. Domains are not scored where 20% of items or more are missing, and are unacceptable where two or more items are missed or 1-item in the 3-item social domain. The scores were transformed on a scale from 0 to 100 to enable comparisons to be made between domains composed of unequal numbers of items. The validated Arabic version of WHOQOL - BreF was used in this study [57]. The Intra-class coefficient (ICC) for the test-retest statistic (0.95) was highly significant. Similarly, the internal consistency values for the full questionnaire and the domains met the 0.7 Cronbach's alpha value requirement. The internal consistency for the 26 items, using responses of all participants was 0.93, with split-half reliability of 0.89.

The Yale Brown Obsessive Compulsive Scale (YBOCS) and Beck Depressive Inventory-II (BDI-II) were used and the details are described elsewhere [62].

3.3 Data Analysis

Statistical analysis was performed using the Statistical Package of Social Sciences (SPSS) version 20. Sociodemographic and clinical data were analyzed using frequencies, percentages, two-tailed student's t-test for continuous variables and Chi-square for categorical variables. All tests of significance were 2-tailed with P value of <0.05.

3.4 Ethical Consideration

The authors submitted research protocol to the Ethical Committee of University of Dammam and obtained approval from this higher education institution. All participants were informed in nontechnical language the objectives of this study and they gave verbal as well as written informed consent for participation in this study. Besides, the main investigator took permission individually from the administrative authorities of each healthcare setting where this research was conducted.

4. RESULTS

Table 1 shows the sociodemographic characteristics of the two groups of participants (OCD=60, Control=76). The analysis of these variables distributed by OCD group and controls revealed that male gender, low education and unemployment were observed to have significant association with OCD.

Table 2 displays the mean scores of WHOQOL-Bref among participants with OCD and general population group. The mean scores are lower in all four domains of physical, psychological, social, and environment. When compared with that of general population group, the QoL mean scores of participants with OCD were significantly lower in all the domains of physical, psychological, social and environment ($p < 0.0001$).

Table 1. Socio-demographic characteristics of participants with OCD (n=60) and controls (n=76)

Sociodemographic data	OCD group no. (%)	Controls no. (%)	P
Age (Mean±SD)	32.18±9.87	30.1±11.26	0.2537
Sex			
Male	29 (48.3)	13 (17.1)	0.0001
Female	31 (51.6)	63 (82.9)	
Education			
Elementary	1 (1.7)	-----	0.002
Intermediate	11 (18.3)	4 (5.3)	
Secondary	17 (28.3)	26 (34.2)	
Diploma	3 (5.0)	1 (1.3)	
University	28 (46.7)	45 (59.2)	
Occupation			
Unemployed	34 (56.7)	24 (31.6)	0.0001
Student	10 (16.7)	40 (52.6)	
Employed	16 (26.6)	12 (15.8)	
Marital status			
Single	28 (46.7)	37 (48.7)	0.815
Married	32 (53.3)	39 (51.3)	

Table 2. Distribution of scores on the WHOQOL-BREF by OCD group and control

Domains of WHOQOL BREF	OCD group Mean±SD	Control Mean±SD	p value
Physical	23.6 (4.79)	27.2 (3.91)	0.0001
Psychological	18.9 (4.21)	22.3 (3.57)	0.0001
Social	10.1 (2.68)	11.9 (2.02)	0.0001
Environment	27.4 (5.82)	30 (5.61)	0.0097
Total	79.9 (14.79)	91.7 (11.97)	0.0001

Table 3 showed that none of the two groups endorsed QoL items at the dissatisfaction level and no items were rated negatively by at least 55% of all participants. The control group endorsed 19 items at the high levels of satisfaction when compared to OCD participants who endorsed only mobility (81.7%) and transport (77.7%) at the high levels of satisfaction. Most of the sub-domains (92.3%) endorsed by participants with OCD were from moderate to bare levels of satisfaction. Conversely, 73.1% (n=19 items) of WHOQOL - Bref sub-domains endorsed by control group were at the high levels of satisfaction. Both groups showed bare satisfaction regarding participation in recreation activities and negative feeling reflecting bidirectional relationship. The highest satisfaction was observed in social relationship domain in OCD group when compared to control group (p<0.01). The alpha coefficient for the social relations domain (0.65) was short of the required level of a 0.7 mark and this problem is well known in the literature [57] as missing values especially on sexual item usually lower alpha level [63].

4.1 Overall QoL and General Health

The study showed that a high proportion of participants with OCD are averagely satisfied with their overall QoL (73.7%) and general health (68%). In comparison, a high proportion of general population participants are highly satisfied with their overall QoL (85%) and overall general health (78.9%) [Table 3]. As assessed by the QoL questionnaire, this degree of average to high level of satisfaction among the two groups is expressed for all the domains - physical, psychological, social relationships and environment [Table 4].

4.2 Domain 1: Physical Domain

The findings showed that participants with OCD rate their subjective QoL at the bare level of satisfaction on the following physical subdomains: need for treatment (60.3%), activity

for daily living (62%) and work capacity (63.7%). They show a moderate level satisfaction on facets of pain and discomfort (66.3%), energy and fatigue (66.3%) and sleep and rest (71.3%). However, they show a high level of satisfaction with their ability to get around (81.7%). In comparison, except for a moderate level of QoL satisfaction on pain and discomfort subdomain (69.5%), the general population group has the tendency to rate their subjective QoL at the high level of satisfaction on the following physical facets: need for treatment (60.3%), activities of daily living [ADL] (62%), work capacity (63.7%), energy and fatigue (66.3%) and sleep and rest (71.3%) [Table 3]. All levels of satisfaction with items of physical domain between the two groups reached statistical significance (P<0.0001) [Table 4].

4.3 Domain II: Psychological Domain

Except for bodily image and appearance (72%), the participants with OCD have endorsed at the moderate level, all other psychological subdomains of life being meaningful (65.7%), concentration (60.7%), self-satisfaction (63%), negative feelings (55%) but life enjoyment was rated at the bare level of satisfaction. In comparison, the general population group has the tendency to have a higher satisfaction with the items related to enjoyment (76.3%), life meaningful (81.6%), bodily appearance (78.9%), and self-satisfaction (79.2%). However, they endorsed moderate and bare levels of satisfaction on concentration (71.3%) and negative feelings (59.2%), respectively [Table 3]. All levels of satisfaction with items of psychological domain between the two groups reached statistical significance (P<0.0009) [Table 4].

4.4 Domain III: Social Relationships

Participants with OCD showed a moderate level of satisfaction on personal relationships (69.7%) and social support network (69.7%), but their ratings of sexual activities were at the bare level

of satisfaction. In comparison, the general population group showed a higher prevalence of subjective satisfaction with facets of personal relationships (80.3%), social support (80.5%) and sexual activities (77.9%) [Table 3]. The levels of satisfaction with all QoL items among the two group have shown to be statistically significant ($P < 0.0002$) [Table 4].

Table 3. Distribution of WHOQOL-BREF items satisfaction levels by OCD patients and control group

Satisfaction level	Patients with OCD	Control group
Highest satisfaction (≥75%)	Mobility (81.7%) Transport (77.7%)	OQoL (85%), Overall health (78.9%), Treatment needs (78.9%), Life meaningful (81.6%), Safety (83.4%), Energy (81.8%), Bodily appearance (78.9%), Financial resources (80.5%), Mobility (92.6%), Sleep (80.3%), ADL (76.6%), Work capacity (77.1%), Self-satisfaction (79.2%), Personal relationships (80.3%), Enjoy (76.3%), Sex life (77.9%), Friends' support (80.5%), Living place (78.2%), and Access to health services (75.3%)
Moderate satisfaction 66% to 74%	OQoL (73.7%), Overall health (68.0%), Pain (66.3%), Life meaningful (65.7%), Safety (69.3%), Energy (66.3%), Bodily appearance (72.0%), Financial resources (69.3%), Sleep (71.3%), Personal relationships (69.7%), Friends' support (69.7%), Living place (69.7%), Access to health services (73.7%)	Pain (69.5%), Concentration (71.3%), Home environment (72.9%) AN* Information (73.2%) Transport (72.4%)
Bare Satisfaction 50% to 65%	Treatment needs (60.3%) Enjoy (62.3%), Life meaningful (65.7%), Concentration (60.7%), Home environment (62.7%), AN* information (65%), Participation recreation (61%), ADL (62.0%), Work capacity (63.7%), Self-satisfaction (63%), Sex life (61.7%), Negative feelings (55%)	Participation recreation (64.2%), Negative feelings (59.2%)
Dissatisfaction level <50%	-----	-----

*AN=acquiring new

Table 4. WHOQOL-BREF domain QoL items by OCD patients (n=60) and control (n=76)

WHOQOL Domains- QoL items	OCD Patients	Control	p value
Physical			
Dissatisfied	7 (11.7)	-----	0.0001
Bare satisfaction	22 (36.7)	13 (17.1)	
Moderate satisfaction	16 (26.7)	16 (21.1)	
Highest satisfaction	15 (25)	47 (61.8)	
Psychological			
Dissatisfied	9 (15)	2 (2.6)	0.0009
Bare satisfaction	15 (25)	15 (19.8)	
Moderate satisfaction	24 (40)	21 (27.6)	
Highest satisfaction	12 (20)	38 (50)	
Social relationships			
Dissatisfied	9 (15)	-----	0.0002
Bare satisfaction	12 (20)	11 (14.5)	
Moderate satisfaction	22 (36.7)	21 (27.6)	
Highest satisfaction	17 (28.3)	44 (57.9)	
Environment			
Dissatisfied	4 (6.7)	3 (42.9)	0.246
Bare satisfaction	21 (35)	18 (46.2)	
Moderate satisfaction	12 (20)	13 (52.0)	
Highest satisfaction	23 (38.3)	42 (64.6)	

4.5 Domain IV: Environment

Except for high level of satisfaction on transport (77.7%), the participants with OCD showed a fair dispersion of QoL at moderate and bare levels of satisfaction as they endorsed safety (69.3%), financial resources (69.3%), living place (69.7%), health services (73.7%) at the moderate level but home environment (62.7%), new information (65%), ADL (63.7%) and participation in recreation (61%) at the bare level of satisfaction. In comparison, the general population group endorsed most of QoL at the high level of satisfaction, which include safety (83.2%), financial resources (80.5%), ADL (76.6%), living place (78.2%), and health services (75.3%). The group showed moderate levels of satisfaction on information (73.2%) and transport (72.4%) and a bare level of satisfaction on participation in recreation (64.2%). All levels of satisfaction with items of environment domain between the two groups did not achieve statistical significance (P=0.246).

Table 4 shows higher scores on QoL for general population group than OCD group. The difference is statistically significant in QoL satisfaction among all domains (p<0.05). The satisfaction difference appears to be lower for environment domain when compared to other domains that have shown a similar significant effect on QoL (p<0.0001). The participants with OCD show the lowest satisfaction on

environment domain (P=0.246) compared to other domains (p<0.0001).

5. DISCUSSION

The analysis of sociodemographic variables of patients with OCD versus control groups showed that male gender, low education and unemployment were significantly associated with OCD whereas age and marital status did not differentiate OCD patients from control group. These findings are partially compatible with other studies [31,64], which reported that adult age, fewer years of education, female married women, non-Qatari patients, and occupation were important risk factors for the development of OCD and QoL. The sociodemographic factors of OCD vary across studies conducted in different settings, cultures, and age groups. Safak and colleagues [65] reported that there was no difference in males and females, marital status, and educational level between OCD, anxiety disorder and control group. The male gender at early age is reported to have preponderance for OCD [37]. In a study of Turkish students, Yoldascan and associates reported that OCD was strongly associated with male gender, living in different types of housing such as government, students' house or parental house, and verbal abuse in the family [66]. In a cross-sectional survey of general adult populations, female gender was reported to manifest more symptoms of contamination and

cleaning and somatic obsessions [67]. In a case controlled study, employment status in combination with depressive symptoms and hoarding predicted 62% of the variance of the social functioning dimension of the QoL of patients with OCD [36]. In addition, low social status also predicts the low QoL of patients with OCD [68]. In hospitals' outpatient sample, Lihua and colleagues revealed that higher level of education, being unemployed, a female, 16–35 years old, divorced/widowed/separated, and low family income were significant predictors of life time OCD [69]. In one study, Rosso et al. [70] reported that at least one stressful life event preceded the onset of OCD was significantly associated with female gender, somatic obsessions and acute onset of the disorder [70]. Overall, sociodemographic of OCD varies across multiple studies and could be attributed to methodological differences and cultural influences.

Evidently, majority of participants' subjective QoL are located at moderate level of satisfaction in terms of general social supports, personal relations, and health services sparing transport facet endorsed at the high satisfaction level could be attributed to Saudi Arabia's affluent economic status and other clinical predictors of QoL of patients with OCD [31,36]. Bodily pains did not impact QoL of patients with OCD [36]. Other possible explanations include rapid urbanization affecting approximately 50% of the world's population that lives in cities, also applies to Saudi Arabia. The fast urbanization heralds a healthy urban environment tagged with a major policy priority [71]. However, there is converging evidence that fast urbanization is coupled with social stress that causes mental health risks and negatively affects emotional wellbeing of city dwellers [72,73] and by extension rural inhabitants. The present study did not support this finding as satisfaction levels related to environment were not significantly different between OCD group and control group. Furthermore, the nature and severity of OCD symptoms might be another cause for diminished social support in the QoL of patients with OCD and high role impairment as well [37]. The OCD patients develop preoccupation with OC symptoms and feel embarrassed and hence, attempt to hide their clinical manifestations especially from their family members, caregivers and friends. In addition, the patients with OCD have fear of criticism, a component of high expressed emotions, due to lack of awareness of the Saudi society to the nature of this disorder

and its attribution to religious rather than medical reasons makes persons with OCD socially less interactive, more isolated and the diminished level of QoL satisfaction [52]. Overall, Saudi Arabia is the most conservative society and hence, social interactions are inherently restricted among people of this country. The findings of the present study are consistent with other studies [27,31,37,55,61-76], which reported that OCD, a chronic and disabling condition, negatively affects the occupational and work relationships, financial, academic achievement, family relationships, friendships, and social life of patients with this disorder. In addition, this disorder also negatively affects the QoL of their family members and caregivers together with their diminished social support and high family burden [54,76]. Interestingly, some family members assist or help patients with OCD in their rituals, and this participatory behavior of family members, referred to as family accommodation, negatively affect the outcome of patients with OCD [31,77]. According to this study, the moderate level of satisfaction with the health services provided may be ascribed to the relative lack of the private psychiatric clinics which are often limited to the government hospitals. Unfortunately, this leads to long-term appointments for the treatment, and this consequently delays in the patients' improvement and further increase in their suffering.

According to this study, there were significant impairments in all QoL domains of physical, psychological, social and environment among participants with OCD when compared to control group, which is compatible with other studies [24,52,78]. However, these findings contradict those of Koran and colleagues [3] who found ratings of physical health domains in OCD to be similar to those in the general population. Similarly, Rodriguez -Salgado and colleagues [79] have found significant differences between OCD patients and control group in all SF-36 QoL subscales except for those related to physical health and pain. In a study that assessed patients with OCD and depressive controls by WHOQOL-BREF, Vikas and colleagues found that patients with OCD had the lowest scores in the psychological health domain and experienced maximum disability in the overall behavior domain but their QoL was better than depressed patients [78]. In another study, Hou and colleagues reported that with the exception of environment domain, scores of all domains, i.e., general, physical, psychological, and social relationship of QoL in OCD patients were lower

than the control group [68]. These inconsistencies may be understood in light of diverse cultures that influence the perception of the corresponding subjective QoL [80] and methodological differences. In particular, OCD patients in Arab and other cultures are more alexithymic, using somatic complaints to express underlying suffering and stresses (somatic language) instead of verbally describing their emotions and feelings [52,81]. Local studies support the cultural influence of physical pain as more than 60% of the sample in a Saudi Egyptian study [52] appears to have somatic obsessions. Surprisingly, somatic obsessions were found in 5% of general adult population mostly in females related to six European countries [67]. The causal explanation of lower QoL among participants with OCD when compared to general population group can be explained by other factors including severity of co-morbid disorders such as depression and anxiety [32,36,62,82], social functioning in interpersonal and work environment [83], OCD symptoms [52,62,84,85], distress related to intrusive obsessions and reflexive compulsions [86,87], severity of OCD symptoms [88] and perceived low social support, severe adverse effects of medication, combined use of mood stabilizers, and low social status [68]. The implication of this study is that there should be further research on illness-specific factors that negatively impact QoL of patients with OCD because WHOQOL_BREF is a generic tool [89]. Moreover, different domains of WHOQOL_BREF are differently affected by OCD [68] and its co-morbid conditions especially depression and anxiety which specify severe OCD psychopathology [62,90].

6. LIMITATIONS

This study has some limitations, which include a cross-sectional design and there was no matching for certain sociodemographic variables between the two groups. The participants with diagnosed OCD are not representative of the general population, and self-administered assessment tools were used. Therefore, the findings do not reflect cause-effect relationships, and cannot be generalized to general population in the country. Certainly, the results could be applicable to hospital and other clinical settings. In self-report tool, what participants report on it is treated as a face value, which is a more general and weak measure of validity [91]. Furthermore, some studies [92] have reported on potential sources of bias when employing self-report

screening instruments such as 1) selective memory, 2) telescoping, 3) attribution, and 4) exaggeration. The strengths of the study are: 1) participants with OCD have been investigated in multiple locations in the mental health hospitals and clinics of the Eastern and Central Provinces; 2) a comparison is made with general population recruited from different locations; and 3) for the assessment of their subjective QoL. For the assessment of subjective QoL, the study administered the standardized Arabic version of WHOQOL-Bref questionnaire used in several studies [93], which is shown to have better psychometric profile compared with other similar screening instruments that can only be used in the context of cut-off scores [94]. The important implication of this study is that mental health professionals should explore the subjective QoL of patients with OCD in their clinical practice in order to offer the targeted interventions for improving domains of QoL.

7. CONCLUSION

In summary, participants with OCD showed a significant reduction in QoL and satisfaction levels across all domains of WHOQOL-Bref compared to control group and these results are partially compatible with international data on QoL of patients with OCD. This preliminary research calls for a community-based study with a larger sample in order to map out the larger scenario of OCD – illness-related factors and their specific connectivity to quality of life.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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