

Health related quality of life in a Saudi population of patients with epilepsy

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ABSTRACT

الأهداف: الصرع هو أحد أكثر الحالات العصبية المزمنة انتشاراً في العالم، مما يؤدي في كثير من الأحيان إلى تدني جودة الحياة. في بحثنا هذا نعمل على تقييم جودة الحياة لدى مرضى الصرع في المملكة العربية السعودية.

المنهجية: أجريت هذه الدراسة المقطعية في العيادات الخارجية لقسم الأعصاب لبرنامج الصرع في مدينة الملك فهد الطبية بالرياض، وذلك عن طريق تحليل بيانات 102 مريض بالغ مصاب بالصرع بداية من سبتمبر 2020م إلى سبتمبر 2021م ومقارنتها ب 108 من الأصحاء خلال الفترة نفسها. قمنا بجمع البيانات الاجتماعية والتاريخ الصحي والسري للمشاركين في الدراسة وذلك باستخدام النسخة العربية من استبيان RAND36 (النموذج القصير SF36) واستبيان (QOLIE-31).

النتائج: كان لدى المرضى الذين يعانون من الصرع درجات أقل على مقياس SF-36 بالمقارنة مع مجموعة الأصحاء وذلك بسبب الصحة البدنية، والصحة العاطفية، والصحة العامة. وكشف مقياس QOLIE-31 أن نوعية الجنس كان له علاقة/ دلالة إحصائية مهمة بالطاقة/التعب ($p=0.028$)، وتأثيرات الدواء ($p=0.016$)، والوظائف الاجتماعية ($p=0.003$). وأظهرت النتائج أن هناك ارتباطاً كبيراً للعلاقات الاجتماعية بالوظائف لدى مرضى الصرع ($p=0.023$).

الخلاصة: أظهرت الدراسة أن جودة الحياة للمرضى الذين يعانون من الصرع في المملكة العربية السعودية متأثرة بشكل كبير. ووجدنا بأن هنالك عوامل معينة في هذه الدراسة غالباً هي السبب في التأثير على جودة حياة مرضى الصرع، وقد تكون هذه العوامل بسبب طبيعة المجتمع العربي في الدعم الأسري وكذلك العادات الثقافية والمعتقدات الدينية.

Objectives: To assess the quality of life for epilepsy patients in Saudi Arabia. Epilepsy, one of the most prevalent chronic neurological conditions in the world, frequently results in a low quality of life.

Methods: This cross-sectional study analyzed data between September 2020 and September 2021 from 102 adult patients with epilepsy in outpatient clinics department of Epilepsy Program at King Fahad

Medical City compared it to 108 healthy controls during the same study period. Sociodemographics and clinical data were gathered using the Arabic version of the Rand 36-Item Short Form Survey (SF-36) questionnaire and the Quality of Life in Epilepsy Inventory (QOLIE-31).

Results: Patients with epilepsy had lower SF-36 scores when compared to the control for role limitation due to physical health, role limitations due to emotional health, and general health. The QOLIE-31 revealed that gender was associated with energy/fatigue ($p=0.028$), medication effect ($p=0.016$), and social function ($p=0.003$); only social functioning showed a significant association ($p=0.023$) with employment.

Conclusion: Quality of life for patients with epilepsy was found to be significantly impacted in Saudi Arabia. Certain factors found in this study differentiate it from data that has already been released. This might be due to Arab differences in family support as well as cultural and religious beliefs.

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Epilepsy, one of the most widespread chronic neurological disorders in the world, still has a substantial influence on patients' lives despite general advances in healthcare.¹ This disorder affects people of all ages and manifests in varying forms and frequencies. Symptoms range from a momentary loss of consciousness and muscle spasms to protracted convulsions.^{2,3} Recurrent seizures involving the

whole body (or a portion of it) that are caused by an overabundance of electrical discharges from a group of brain cells is characterized as epilepsy.³ Epilepsy affects approximately 50 million patients worldwide, with an estimated cumulative yearly incidence rate of 67.77 per 100,000 individuals.^{3,4} According to a recent systematic study and meta-analysis, worldwide, 6.38 per 1,000 individuals had active epilepsy.⁵ Additionally, 80% of patients with epilepsy (PWE) reside in developing and middle-income nations.⁴ One Saudi Arabian community-based study reported that the prevalence rate for active epilepsy was 6.54 per 1,000 people.⁶

The World Health Organization defines quality of life (QOL) 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, standards, and concerns.” In healthcare, QOL is usually evaluated by how a certain ailment affects a patient on a personal level. Additionally, it is assessed according to 4 domains: physical health, psychological health, social relationships, and immediate environment.⁷

As a result of the unpredictability of seizure recurrence, PWE are more likely to suffer from poor QOL compared to the overall population.^{3,8} In addition to this, previous studies have shown that inadequate self-management, poor adherence, stigma, and other concomitant problems have a significant negative impact on PWE’s QOL, particularly with regard to their working environment and social relationships.⁹ In most societies, PWE are exceptionally vulnerable because of the stigma associated with epilepsy, which probably stems from a general lack of knowledge on the condition.¹⁰ The QOL of PWE can also be negatively impacted by psychosocial problems such as depression, anxiety, social stigma, a lack of social support, and unemployment.¹¹

Quantifying QOL in individuals with epilepsy has become necessary because of the increased relevance of the psychosocial impact of epilepsy.¹² Furthermore, it is essential to identify the predictors of decreased QOL in PWE.

Although many studies have assessed the QOL of PWE worldwide, few studies have assessed patients in Saudi Arabia. A better understanding of QOL in PWE living in different populations is crucial, since various

cultural, ethnic, and economic factors impact QOL. As such, our study sought to evaluate the level of health related QOL of PWE and how it compares to healthy controls in Saudi Arabia.

Methods. Study design and participants. This cross-sectional case-control study was conducted at one of Saudi Arabia’s main tertiary hospitals, King Fahad Medical City in the capital Riyadh between September 2020 and September 2021.

Inclusion criteria for the patient group were as follows: (1) epilepsy diagnosis for at least one year; (2) persons who are at least 18 years of age; (3) no chronic illness; (4) no disability; and (5) acquiesced to taking part in the research. Exclusion standards included: (1) having difficulty communicating, e.g., having speech or hearing impairments; (2) symptomatic epilepsy; or (3) any other chronic disorders.

Data collection and study instruments. We used 2 questionnaires to interview participants: (1) the Rand 36-Item Short Form Survey (SF-36; Version 1.0), and (2) the Quality of Life in Epilepsy Inventory (QOLIE-31; Version 1.0), as developed by Rand (1993).

Rand 36-Item short form survey (SF-36). A widely used general assessment of health state is the SF-36. The health-related quality of life of PWE and the healthy control group was compared in our study using this. Moreover, our study utilized the Arabic version of the SF-36 questionnaire, which was validated in Saudi Arabia and has been available since 1997. Permission was obtained from Rand, which is the organization that publishes the questionnaire.

The SF-36 comprises a 36-item scale assessing eight separate dimensions of health: (1) physical functioning (PF); (2) bodily pain (BP); (3) role limitations due to physical health (RP); (4) role limitations due to personal or emotional health (RE); (5) emotional well-being or mental health (MH); (6) social functioning (SF); (7) energy/fatigue or vitality (VT); and (8) general health perceptions (GH). The SF-36 score divides QOL into four levels: poor QOL (score: 0-40); moderate QOL (score: 40-60); good QOL (score: 61-80); and excellent QOL (score: 80-100).¹³

The subscales MH, RE, and SF that exhibit substantial correlations with the VT subscale and contribute most to the scoring of the mental component summary (MCS) measures have the highest correlations with the mental element of QOL. The Physical Component Summary (PCS) measure is most strongly scored by the PF, RP, and BP subscales, which are also linked to the GH subscale and significantly correlated with the physical part of QOL.¹⁴

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Quality of Life in Epilepsy Inventory (QOLIE-31) Our study used the validated Arabic version¹⁵ of the QOLIE-31 for PWE only. The questionnaire contains 31 questions and seven subscales, with each of the subscales assessing a different domain of QOL: (1) seizure worry (SW); (2) overall QOL; (3) emotional well-being; (4) energy/fatigue (EF); (5) cognitive functioning; (6) antiepileptic medication effects; and (7) social functioning. Each subscale was converted into a 0-100 value, which was evenly distributed for each question (the lower the score, the greater the disability).

Hypothesis. PWE having lower quality of life comparing to the general population.

Ethics. The Regional Ethical Committee approved this study (#20-611) on September 22, 2020. The Declaration of Helsinki's guiding principles were followed during the conduct of this study. Before the start of the questionnaire, the study participants provided informed consent. Every participant was then interviewed by a physician for the survey, either in person or over the phone. Access to data was strictly

limited to members of this research team, who are all named in this paper.

Statistics. The findings of this study were analyzed using IBM SPSS (Version 23; IBM, Armonk, NY, USA) and graphically presented using GraphPad Prism (Version 8; GraphPad Software, San Diego, CA, USA). A reliability analysis was used for each of the domains calculated using the scoring system of the surveys introduced above, Cronbach's alpha was used to investigate the characteristics of the gauging scales, the scales' constituent items, and the mean inter-item correlation. Variables that were represented by means were correlated using Pearson's correlation coefficient for inferential analyses. An independent t-test and one-way analysis of variance (ANOVA) with least significant difference (LSD) as a post-hoc test was employed to contrast two or more group means. These assessments were performed under the presumption of a standard distribution. Welch's t-test for 2 group means and Games-Howell test for multiple groups were used

Table 1 - Sociodemographics of the studied population

Variables	Total	Group		P-value
		Patient n (%)	Control	
Age				
Min-Max	18-65	18-65	18-59	<0.001 ^a
Mean±SD	31.06±8.6	28.03±8.0	33.93±8.2	
Total	210(100)	102(48.6)	108(51.4)	
Gender				
Male	104 (49.5)	57 (55.9)	47 (43.5)	0.073
Female	106 (50.5)	45 (44.1)	61 (56.5)	
Marital status				
Single	86 (41.0)	56 (54.9)	30 (27.8)	<0.001 ^b
Married	120 (57.1)	44 (43.1)	76 (70.4)	
Divorced	4 (1.9)	2 (2.0)	2 (1.9)	
Employment				
Student/school	14(6.7)	11(10.8)	3(2.8)	<0.001 ^b
Student/collage	28(13.3)	19(18.6)	9(8.3)	
Employed	126(60.0)	44(43.1)	82(75.9)	
Unemployed	39(18.6)	27(26.5)	12(11.1)	
Retired	3(1.4)	1(1.0)	2 (1.9)	
Education				
Elementary school	2(1.0)	2(2.0)	0(0.0)	<0.001 ^b
Intermediate school	3(1.4)	3(2.9)	0(0.0)	
High school	59(28.1)	47(46.1)	12(11.1)	
Diploma	18(8.6)	6(5.9)	12(11.1)	
Bachelor	89(42.4)	40(39.2)	49(45.4)	
Master	39(18.6)	4(3.9)	35(32.4)	

^asignificant when using independent t-test at <0.05, ^bsignificant when using Chi-Square test at <0.05

Table 2 - Clinical characteristics of the studied population. N=102 n (%)

Variables	Min - Max	Mean±SD
Seizure onset age	1 - 60	16.45±9.164
Total		102 (100)
Type of seizure		
Focal		65 (63.7)
Generalized		37 (36.3)
Focal epilepsy subtypes		
Frontal		13 (12.7)
Occipital		1 (1.0)
Parietal		3 (2.9)
Temporal		37 (36.3)
Undetermined		11 (10.8)
Duration of epilepsy		
<5 years		27 (26.5)
5-10 years		28 (27.5)
>10 years		47 (46.1)
Seizure frequency		
Daily		12 (11.8)
Weekly		16 (15.7)
Monthly		37 (36.3)
Annually		34 (33.3)
> 1 year		3 (3.0)
Seizure timing		
Anytime		51 (50.0)
Daytime		23 (22.5)
Night		28 (27.5)
Number of current ASDs		
1		40 (39.2)
2		44 (43.1)
>2		18 (17.6)

as alternatives for the LSD test. Finally, $p < 0.05$ was considered statistically significant.

Results. Participant sociodemographics. The study included 210 participants in total. The study participants were subdivided into 102 PWE and 108 healthy controls. The 210 patients (nPWE=102, 48.6%; ncontrol group=108, 51.4%) had a mean age of 31.06 ± 8.6

years (18–65 years old; mean age PWE= 28.03 ± 8.0 years, mean agecontrol group= 33.93 ± 8.2 years). The majority of participants were married (57.1%, n=120) and employed (60.0%, n=126). Roughly half of the respondents had a bachelor's degree (42.4%, n=89). Significant variations ($p < 0.001$) were observed between the study participants and demographic variables such as age, marital status, employment, and education, according to the independent t-test and chi-square test (Table 1).

When comparing the 2 groups, the majority of the married [70.4% (ncontrol group=76) versus 43.1% (nPWE=44)], employed [75.9% (ncontrol group=82) vs. 43.1% (nPWE=44)], bachelor's degree of education [45.4% (ncontrol group= 49) vs. 39.2% (nPWE=40)], and female participants [56.5% (ncontrol group=61) vs. 44.1% (nPWE=45)] belonged to the control group compared to PWE group (Table 1).

Clinical characteristics of PWE group. The study population's median age at the beginning of epilepsy (n=102) was 16.45 ± 9.164 years (one–60). Approximately two-thirds (63.7%, n=65) of the patients had focal epilepsy, while generalized epilepsy was observed in 36.3% (n=37) of the patients (Table 2).

The most common focal seizure type was temporal lobe seizure (36.3%, n=37), followed by frontal lobe seizure (12.7%, n=13). The majority of the respondents had been experiencing seizures for 10 years maximum (54.0%, n=55), while 46.1% (n=47) had experienced it for over 10 years. The frequency of seizures was also

Table 3 - Comparison of RAND-36 means between patient and control groups.

RAND-36	Total	Patient	Control	P-value
	210	102	108	-
PF	92.02±15.9	93.28±14.1	90.82±17.4	0.263
RP	76.31±37.6	66.67±41.4	85.42±31.2	<0.001 ^a
RE	71.19±41.6	65.03±44.8	77.01±37.6	0.038 ^a
VT	59.47±24.1	59.61±27.2	59.34±21.0	0.936
MH	66.86±22.9	66.78±24.7	66.94±21.3	0.962
SF	76.49±26.0	75.25±29.2	77.66±22.7	0.506
BP	85.62±20.7	87.99±21.7	83.38±19.5	0.107
GH	72.18±17.3	68.71±19.7	75.46±14.1	0.005 ^a
PCS	84.65±19.2	82.65±20.2	86.54±18.1	0.144
MCS	71.51±24.7	69.02±26.3	73.87±23.0	0.158
Total	73.67±17.3	72.68±19.4	74.59±15.1	0.429

^a Significant when using Welch's t-test at 0.05, PF - physical functioning, BP - bodily pain, RP - role limitations due to physical health, RE - role limitations due to personal or emotional health, MH - emotional well-being or mental health, SF - social functioning, VT - vitality or energy/fatigue, GH - general health perceptions, MCS - mental component summary, PCS - physical component summary

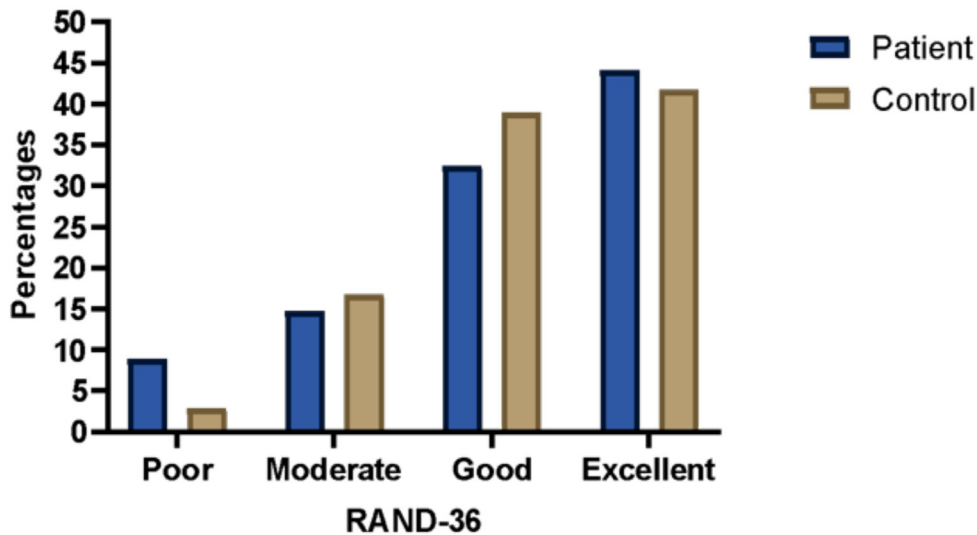


Figure 1 - Distribution of RAND-36 scores of quality of life in patient vs. control groups.

Table 4 - RAND-36 (SF-36) domain correlations.

Correlations	Role limitations due to physical health	Role limitations due to emotional health	Energy/Fatigue	Emotional well-being	Social functioning	Pain	General health	Health change
<i>Physical functioning</i>								
r	0.432**	0.215**	0.171*	0.105	0.270**	0.206**	0.310**	0.198**
p-value	<0.001	0.002	0.013	0.130	<0.001	0.003	<0.001	0.004
N	210	210	210	210	210	210	210	210
<i>Role limitations due to physical health</i>								
r		0.490**	0.324**	0.233**	0.424**	0.369**	0.405**	0.204**
p-value		<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.003
N		210	210	210	210	210	210	210
<i>Role limitations due to emotional health</i>								
r			0.413**	0.454**	0.516**	0.216**	0.409**	0.215**
p-value			<0.001	<0.001	<0.001	0.002	<0.001	0.002
N			210	210	210	210	210	210
<i>Energy/fatigue</i>								
r				0.714**	0.539**	0.406**	0.564**	0.429**
p-value				<0.001	<0.001	<0.001	<0.001	<0.001
N				210	210	210	210	210
<i>Emotional well-being</i>								
r					0.484**	0.333**	0.525**	0.305**
p-value					<0.001	<0.001	<0.001	<0.001
N					210	210	210	210
<i>Social functioning</i>								
r						0.401**	0.440**	0.304**
p-value						<0.001	<0.001	<0.001
N						210	210	210
<i>Pain</i>								
r							0.350**	0.227**
p-value							<0.001	0.001
N							210	210
<i>General health</i>								
r								0.317**
p-value								<0.001
N								210

** Correlation is significant at 0.01 (2-tailed), * Correlation is significant at 0.05 (2-tailed)

determined, revealing that approximately one-third of patients experienced seizures monthly (36.3%, n=37) and annually (33.3%, n=34), while only 15.7% (n=16) experienced weekly and 11.8% (n=12) experienced daily seizures. Half of the respondents (n=51) experienced seizures at any time, whereas 22.5% (n=23) had seizure during the day and 27.5% (n=28) experienced seizures during the night. Approximately 60.7% (n=62) of the participants had drug-resistant epilepsy as they were on two or more medications, whereas a relatively lower percentage of respondents (39.2%, n=40) received monotherapy (Table 2).

RAND-36 (SF-36) profile. The mean RAND-36 scores and a comparison of the scores between the PWE and healthy groups are shown in Table 3. Significant

differences in RAND-36 scores among the groups were observed for RP ($p<0.001$), RE ($p=0.038$), and GH ($p=0.005$) components. Significantly higher RAND-36 scores in the RP, RE, and GH domains were reported in the control group than in PWE. Across the subscales of RAND-36 in the PWE, the highest mean scores (93.28 ± 14.1) were observed for PF, while the lowest mean score (59.61 ± 27.2) was observed for VT. Moreover, the results revealed an average PCS of 84.65 ± 19.2 (20.83–100.00), and an average MCS of 71.51 ± 24.7 (2.67–100.00). No significant differences were observed between PCS and MCS between PWE and healthy controls. The total mean score of RAND-36 in PWE was 72.68 ± 19.4 and 74.59 ± 15.1 , in healthy controls.

Table 5 - Correlation between patients' personal and clinical data with different quality of life domains in the QOLIE-31 Survey.

Variables	Seizure worry	Overall quality of life	Emotional well-being	Energy/ Fatigue	Cognitive	Medication effect	Social function	QOLIE-31 score
Gender								
<i>P</i> -value	0.121	0.461	0.092	0.028 ^a	0.644	0.016 ^a	0.003 ^a	0.029 ^a
Marital status								
<i>P</i> -value	0.163	0.336	0.358	0.255	0.871	0.148	0.067	0.166
Employment								
<i>P</i> -value	0.814	0.984	0.590	0.928	0.956	0.243	0.023 ^a	0.597
Education								
<i>P</i> -value	0.761	0.623	0.523	0.705	0.794	0.438	0.069	0.754
Type of seizure								
<i>P</i> -value	0.092	0.873	0.384	0.413	0.778	0.960	0.462	0.824
Duration of epilepsy								
<i>P</i> -value	0.953	0.427	0.329	0.727	0.517	0.850	0.362	0.358
Number of current ASMs								
<i>P</i> -value	0.545	0.721	0.742	0.813	0.858	0.978	0.496	0.873
Seizure frequency								
<i>P</i> -value	0.151	0.253	0.012 ^a	0.240	0.249	0.736	0.098	0.146

^a Significant when using one-way ANOVA at <0.05, ^b Using Games-Howell nonparametric post-hoc test, ASM - antiseizure medications

All SF-36 subscales showed statistically noteworthy associations. ($p < 0.05$), except in the correlation between physical function and emotional wellbeing ($p = 0.130$) (Table 4). As presented in Fig. 1, approximately half of the patients demonstrated excellent RAND-36 scores (44.1%, $n = 45$), whereas approximately one-third demonstrated good scores (32.4%, $n = 33$). Differences between the scores of PWE vs. healthy persons were not statistically significant.

Association of sociodemographics and patient clinical data against QOLIE-31 domains. The participants' mean QOLIE overall score was 65.17 ± 19.1 , which is marginally higher than the global overall mean QOLIE-31 score of 59 ± 8.016 . Meanwhile, the participants demonstrated the following scores for each domain: 59.66 ± 26.8 for the energy/fatigue domain; 66.39 ± 24.6 for the emotional well-being domain; 65.94 ± 27.3 for the social functioning domain; 65.49 ± 24.3 for the cognitive functioning domain; 57.8 ± 30.6 for the medication effects domain; 51.55 ± 29.8 for the seizure worry domain; and 76.30 ± 23.1 for the overall QOL domain.

The association between patients' sociodemographics and clinical data with the QOLIE-31 domains was evaluated using an independent t-test and one-way ANOVA analysis (Table 5). The outcomes showed statistically significant associations between gender and QOLIE-31 domains, such as energy/fatigue ($p = 0.028$), medication effect ($p = 0.016$), social function ($p = 0.003$), and QOLIE overall score ($p = 0.029$). Only social function showed a significant association ($p = 0.023$) with employment. Lastly, no significant association was

observed for marital and educational status against all 7 QOLIE-31 domains.

Regarding patient clinical data in relation to the QOLIE-31 domains, the results showed a significant association between seizure frequency and emotional well-being ($p = 0.012$). Meanwhile, no significant associations were noted between all other clinical data, namely, the type of seizure, duration of epilepsy, number of current antiseizure medications (ASMs), and seizure frequency (Table 5).

Discussion. Participant sociodemographics. In the present study, we evaluated the QOL of 210 participants (102 PWE and 108 healthy controls); the PWE subgroup was composed of patients from the King Fahad Medical City, Riyadh, Kingdom of Saudi Arabia.

The majority of the PWE were men; this is contrary to the population studied by Kishk et al,¹⁷ in which male PWE were reported to be relatively less frequent than women. This study did not find any statistically significant association between gender and the subgroup of participants. Furthermore, previous studies have documented the significant psychosocial impact of stigma regarding epilepsy in both genders, in addition to men's higher social obligations and women's sociocultural limitations.¹⁷

However, statistically significant associations were observed between the study participants and the following: age, marital status, employment, and education.

A mean age of 31.06 ± 8.6 years was reported among the respondents, revealing that most of them were middle-aged. This is slightly higher than the mean age reported by other studies.¹⁷ Nonetheless, it can be explained by the eligibility criteria of the study in which only respondents who were 18 years old and above were eligible. The PWE group's average age was likewise marginally lower than the control group's.

Wang et al¹⁸ and Asadi-Pooya et al¹⁹ indicated that epilepsy is linked to adverse effects on a range of aspects of PWE's social life. Furthermore, Saleh et al²⁰ reported that individuals with seizure disorders are less socially privileged than the general population. The majority of the respondents were also married, employed, and had a bachelor's degree. In each of these categories, the proportion of the healthy control subgroup dominated that of the PWE.

Singh et al²¹ reported that PWE tend to frequently experience marital problems, such as reduced marital prospects and poor marital outcomes. In a recently conducted study in Egypt, a relatively lower percentage of PWE had ever been married, which is consistent with previous results in which PWE had a lower rate of marriage.¹⁷ Similarly, in another cross-sectional study in Saudi Arabia, less than a quarter of the respondents would marry an individual with epilepsy, and only around half of the respondents were supportive of their children playing with an epileptic child.²² Nevertheless, less than a quarter of the respondents concur that a PWE experiences discrimination.^{23,24}

Regarding employment, patients with seizure disorders are typically more likely to be unemployed, notwithstanding the fact that many of them desire to work.²⁰ Moreover, the higher rates of unemployment among PWE relative to the healthy control group could be attributed to the lower reported educational levels of PWE compared to the healthy control group. For instance, approximately half of PWE respondents and only a little over 10% of the healthy control respondents only attained high school education. This is based on the assumption that individuals who have completed higher educational levels are more likely to be employed relative to those who have completed lower educational levels. Nevertheless, there is a lack of reports on the frequency of employment and workplace safety among Saudi Arabian individuals with seizure disorders.

Clinical characteristics of the PWE subgroup. In the PWE subgroup, the median age to diagnosed with epilepsy was 16.45 ± 9.164 years, which is relatively younger than that in previous studies.²⁵

The majority of PWE respondents had focal epilepsy, with the most common type being the temporal lobe,

whereas a relatively lower percentage had generalized epilepsy. This is consistent with the report of the Epilepsy Foundation, which indicated that temporal lobe epilepsy (TLE) is the most common type of focal epilepsy, accounting for approximately six out of ten people with focal epilepsy (Epilepsy Foundation, n.d.).

Additionally, TLE is commonly accompanied by a psychiatric comorbidity. In fact, people with TLE have a higher prevalence of psychiatric illnesses than those with generalized epilepsy.²⁶ According to prior studies, patients with mesial temporal lobe epilepsy (MTLE) have a higher prevalence of major depressive disorder (MDD) than the general population.^{27,28} This psychiatric comorbidity raises serious concerns regarding the poor QOL among these patients.²⁹ Additionally, people with MTLE and MDD face a significant risk of suicide.²⁷

Most respondents had been experiencing seizures for at least 10 years, while some had experienced seizures for over 10 years. Approximately one-third of the patients also experience seizures monthly and annually, and a relatively smaller percentage experience weekly and daily seizures. According to Charité – Universitätsmedizin Berlin,³⁰ TLE can have long-term effects such as memory issues, learning disabilities, and emotional instability. Additionally, the inability to work, drive, or participate in sports drastically lowers the QOL for patients with TLE. This is aggravated by the fact that the medications used to treat patients with TLE frequently fail to sufficiently control the condition while still being linked to serious adverse effects. In line with this, a lower QOL is more likely the more seizures PWE experience and the longer they last.³¹

The majority of participants had drug-resistant epilepsy and were on two or more medications. Moreover, Lima et al³² highlighted the well-established association between the severity of depressive and anxiety symptoms and impaired QOL in individuals with drug-resistant epilepsy.

RAND-36 (SF-36) profile. Statistically significant differences were noted between the RAND-36 scores of both groups for the RP, RE, and GH components. Significantly higher RAND-36 scores in the RP, RE, and GH domains were reported in the control group than in the PWE group. This is consistent with the assumption that higher scores indicate better QOL and further highlights the general health perception and rule limitations due to physical and emotional health issues associated with epilepsy disorder. As indicated by Akyol et al³³ Yeni et al³⁴ and Steiger & Jokeit³⁵ PWE are at an increased risk of lower QOL and hampered social interactions brought about by social cognitive deficiencies due to neuropsychological impairment.

Among all the subscales of the RAND-36 in the PWE, the highest mean score was recorded for PF, while the lowest mean score was recorded for VT; that is, the respondents' mean PF and VT scores can be interpreted as excellent and moderate QOL. There were no discernible differences between PCS, MCS and the respondents (PWE and healthy controls), although a favorable QOL was revealed; that is, the mean PCS and MCS were interpreted as excellent and good QOL. Furthermore, the total mean score of the RAND-36 in the PWE compared to healthy control groups indicated good QOL.

RAND-36 (SF-36) domain correlations. All SF-36 subscales showed statistically significant relationships, with the exception of the association between physical function and emotional well-being. This could be attributable to the fact that most respondents displayed relatively good RAND-36 scores; hence, the magnitude of the impact of physical function on the respondents' condition was not as apparent. In addition, although the sample sizes of the PWE and healthy control groups were similar, the latter had a relatively larger sample size than the former. This might have had an impact on the findings of the current study.

Association of sociodemographics and patient clinical data against QOLIE-31 domains. The participants' mean QOLIE overall score was 65.17 ± 19.1 , which is slightly higher than the overall score reported in a similar study in Jeddah.³⁶ Significant associations were observed between the following: gender and energy/fatigue, medication effect, social function, and QOLIE overall score. The association between gender and energy/fatigue is in line with the study by Tayeb et al,³⁶ in which female PWE demonstrated relatively lower energy scores than male PWE. Meanwhile, the association between gender and medication effect can be substantiated by the study conducted by Reddy (2017). This study indicated that the natural fluctuation in steroid hormones that occurs among women during the menstrual cycle substantially impacts seizure patterns and may impact drug therapy.³⁷ Large-scale epidemiological studies indicate that disruptions in social function through the occurrence of anxiety disorders are much more common among women; more so, this disparity is more prevalent in patients neuropsychiatric disorders.³⁸ Lastly, the employment factor also showed a significant association with social function. Despite being one of the most common chronic diseases, epilepsy is typically unknown to the general public and frequently associated with false beliefs. As a result, PWE frequently experience stigma and discrimination which translate to difficulty in employment, education, and

socialization.³⁹ Considering the association between patient clinical data and QOLIE-31 domains, the only significant association was between seizure frequency and emotional well-being. As indicated by Tayeb et al,³⁶ PWE's overall health-related quality of life can be affected adversely by seizure frequency. Therefore, the patient's QOL will improve with fewer seizures.

Our study is constrained. Because this study used a cross-sectional research approach, the findings' generalizability and response bias may be limited. Further investigation is required to evaluate AED levels and determine whether other factors such as medication compliance and the challenge in controlling seizures can also have a negative effect on QoL among Saudi PWE.

Epilepsy adversely affects the QOL of Saudi PWE, as it does in many other nations. Furthermore, the 3 most crucial variables found in this study were gender, employment, and seizure frequency. The outcomes of recent studies have also increased the use of behavioral interventions in daily practice. In addition to QOLIE³¹ and its domains, therapists and other healthcare professionals specializing in epilepsy should consider additional aspects to provide individualized therapy.

Conclusions. The quality of life of PWE is severely affected in Saudi Arabia. The factors found in this study differ from data that has already been published. These cross-cultural variances have been justified for a number of reasons, including familial support, cultural and religious views, and other factors. Therefore, bigger studies are required to verify these findings.

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