Original Article

Health-related quality of life in gout patients in Madinah Region, Saudi Arabia

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Abstract

Background: Gout can significantly impact health-related quality of life (HRQoL) due to excruciating pain, chronic arthropathy, and associated comorbidities. The objective of our study was to evaluate HRQoL among patients diagnosed with gout in the Madinah region of Saudi Arabia. **Materials and Methods:** The research took place in the Madinah Region, where eligible adult participants aged 18 years or older, having a confirmed history, or present diagnosis of gout were enrolled using medical records from 2016 to 2022. To gather data, patients were invited to participate in telephone-based interviews and complete the Short Form-36 (SF-36) questionnaire. **Results:** The majority of participants were male (81.5%), and 31–39 years form the largest group (37.0%). Most participants were married (86.4%), and the majority possess university and postgraduate education (70.4%). The respondents' self-reported assessments were as follows: physical function (69.9), limitation due to physical health (74.1), emotional problem (75.8), energy or fatigue (61.6), emotional well-being (68.9), social functioning (76.6), pain (78.9), and general health (63.8). **Conclusions:** HRQoL among patients with gout was not significantly affected.

Keywords: Emotion, gout, morbidities, quality life

Introduction

Gout, the most prevalent inflammatory arthritis, affects approximately 1.4% of adults in Europe.[1] The condition can significantly impact health-related quality of life (HRQoL) due to excruciating pain and chronic arthropathy that often restrict daily activities, such as walking and standing, impact occupational tasks, curtail social interactions, and contribute to psychological distress. In addition, gout has a lot of associated comorbidities, such as renal and cardiovascular disease, metabolic syndrome, diabetes, hypertension, and osteoarthritis.[2] Moreover, frequent suboptimal management of gout can exacerbate its effects on HRQoL. The United Kingdom Department of Health and the Outcome Measures in Rheumatology Clinical Trials (OMERACT) group recognized HRQoL as a crucial element in patient outcome assessment. Alongside traditional markers, such as survival rates, symptoms, and resource costs, HRQoL plays a significant role in evaluating the overall impact and effectiveness of interventions in rheumatology clinical trials.[3,4] The physical health domain of QoL assesses an individual's well-being, including physical functioning and overall health status, such as mobility, daily tasks, energy levels, pain management, and sleep quality. The psychological domain involves factors contributing to psychological well-being and QoL, such as self-image, negative thoughts, positive attitudes, self-esteem, mentality, learning ability, memory concentration, religion, and mental status.[5] The social relationship domain

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encompasses aspects of social interactions and connections, including personal relationships, social support, and sex life. Lastly, the environmental domain of QoL comprises various aspects related to an individual's physical surroundings and available resources, such as financial resources, safety, access to health care and social services, living conditions, opportunities for learning and skill development, recreational options, environmental factors, such as noise and air pollution, and transportation.[6]

Among the various measures used to assess QoL, a total of twelve generic instruments and eleven specific instruments were identified. The most utilized generic instrument was the Short Form-36 (SF-36).[7] The SF-36 is a health status profile designed to measure the health status and outcomes of patients, originally targeting individuals living in the community. It consists of 36 questions, representing eight domains of health, including physical functioning, physical role, pain, general health, vitality, social function, emotional role, and mental health.[8]

Based on the findings of a retrospective analysis conducted on 1206 patients who underwent laboratory blood testing at King Abdulaziz University Hospital, Jeddah, over a 3-year period (2018–2020). The prevalence of hyperuricemia in the study population was found to be 12%, with a higher occurrence among males (8.13%) compared with females (3.73%). In a previous study conducted on the Saudi population, it was found that the prevalence of hyperuricemia was 8.2%. Interestingly, the study observed an equal distribution of hyperuricemia between males and females.[9] Indeed, the severe pain, chronicity, and related comorbidities of gout can have a detrimental impact on the QoL of affected patients. As of our current knowledge, there is a lack of conducted research that specifically measures the QoL of gout patients in Saudi Arabia. Here, we aimed to assess the HRQoL among patients with gout in Madinah Region, Saudi Arabia.

Materials and Methods

The study was conducted in the Madinah Region of Saudi Arabia and focused on gout patients who had been diagnosed with crystal-proven gout and visited a gout clinic, King Fahd Hospital (KFH). We recruited eligible adult participants aged 18 years or older with a confirmed history or current diagnosis of gout, as assessed by a physician. The recruitment process involved accessing medical records spanning from 2016 to 2022. These individuals were asked to complete two questionnaires during a telephone-based interview: the SF-36 questionnaire and a general questionnaire that delved into the characteristics of gout patients. The study collected a comprehensive dataset from eligible adult participants with a confirmed history or current diagnosis of gout. The data included self-reported gout flare frequency, previous urate-lowering therapy treatments and dosages, serum uric acid levels, medications used during acute attacks, and the presence of tophi and gravels. Additionally, general participant information encompassed age, sex, race, marital status, educational level, weight, height, occupation, monthly income, smoking habits, and consumption of spiritual beverages. Furthermore, the study assessed various comorbidities such as diabetes, hypertension, and cerebrovascular diseases.

The SF-36 is a widely used generic health status measure comprising 36 items that assess eight different scales.[10,11] Each of these scales is scored on a scale from 0 to 100, where higher scores indicate better health. The eight scales of the SF-36 can be combined to create two summary scores: the Physical Component Summary (PCS) and the Mental Component Summary (MCS) scores. In the US general population, the mean (standard deviation) score for both summary scores is set at 50 (10); serving as a reference point for comparison in this study, we used the validated Arabic version of the S36.

Statistical analysis

In the study, baseline descriptive statistics were calculated for the SF-36 scale scores, providing an overview of the participants' initial health status across the eight different scales. Mean and standard deviation were employed to characterize data with a normal distribution, whereas median and interquartile range were utilized for data exhibiting skewness. All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 26.

Ethical approval

Ethical approval was obtained from the General Directorate of Health Affairs in Madinah (IRB; 22-078) to gather general data and assess HRQoL. As per the Institutional Review Board (IRB)'s guidelines based on local regulations, written consent was obtained from all respondents. The study adhered to the principles of the Declaration of Helsinki.

Results

Table 1 presents data on various studied variables from a sample of 80 individuals. The majority of participants were male (81.5%), while females constituted a smaller proportion (17.3%). The age distribution shows that participants aged 31–39 years form the largest group (37.0%), followed by those aged 40–49 years (29.6%). Most participants identify as Arabic (93.8%), with smaller representations from the Asian (3.7%) and African (1.2%) races. Most participants were married (86.4%), and the majority possess university and postgraduate education (70.4%). In terms of occupation, a significant portion were employed in official positions (70.4%), while others are retired (12.3%) or not working (13.6%). The monthly income distribution reveals that 46.9% of participants earned above 10000, while 32.1% earned less than 5000. The average body mass index (BMI) for the sample is 31.34 ± 16.89. Moreover, most participants are nonsmokers (64.2%) and do not consume alcohol (97.5%).

Among the studied individuals, hypertension appears to be the most prevalent condition, affecting 18.5% of the population.

Table 1: Demographic profile and socioeconomic characteristics of a sample population complaining of gout: A study of 80 individuals

Studied variables (*n*=80)	Number	%
Sex		
Male	66	81.5
Female	14	17.3
Age group		
18–30 years	7	8.6
31–39 years	30	37.0
40–49 years	24	29.6
50–59 years	13	16.0
Above 60 years	6	7.4
Race		
African	1	1.2
Asian	3	3.7
Arabic	76	93.8
Marital status		
Single	10	12.3
Married	70	86.4
Education		
Primary	6	7.4
Preparatory	3	3.7
Secondary	14	17.3
University and postgraduate	57	70.4
Occupation		
Not working	11	13.6
Retired	10	12.3
Can't work due to disease	2	2.5
Official	57	70.4
Monthly income		
<5000	26	32.1
5000–1000	16	19.8
Above 10000	38	46.9
Body mass index	31.34±16.89	
Smoking		
Nonsmoker	52	64.2
Smoker	28	34.6
Alcohol		
No	79	97.5
Yes	1	1.2

Diabetes mellitus and hyperlipidemia also show significant prevalence rates at 9.9% each. Depression has a prevalence rate of 6.2%, while chronic pulmonary diseases and renal stones are observed in 3.7% of the population each. Osteoporosis and renal failure both have a prevalence of 2.5%, and cardiovascular diseases and stroke show the lowest prevalence rates at 1.2% each [Figure 1].

The study presents key characteristics of gout in the surveyed population. The median duration of gout was 5.0 years, and 40.7% reported serum urate (SUA) levels below 6 mg/dL. Over the last year, the median number of acute attacks as confirmed by treating physicians was 2.0 [1.0–4.0]. The median of SUA during attacks was 6.5 [5.5–7.4]. During acute attacks, a significant number of respondents did not use any specific drugs (72.5%), while others utilized nonsteroidal anti-inflammatory drugs (NSAIDs) (10.0%), steroids (2.5%), or colchicine (15.0%). Moreover, a majority (81.3%) were not using antihyperuricemia drugs, potentially pointing to the need for better management. The study also revealed varying gout attack frequencies, with 58.8% reporting no recent attacks and smaller proportions experiencing 1 to 2 attacks (28.8%), 3 attacks (6.3%), 4 to 5 attacks (2.5%), or more than 6 attacks (3.8%) [Table 2].

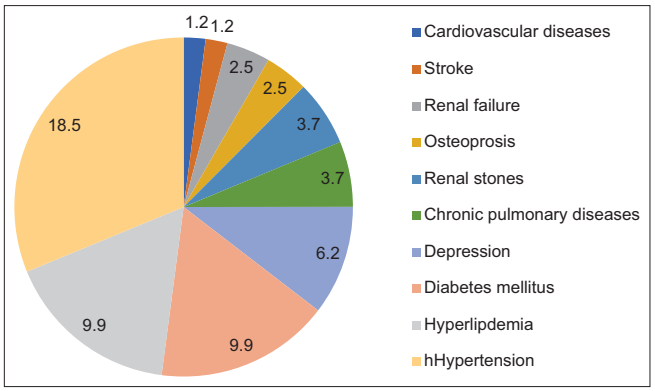

Figure 1: Prevalence of health conditions in a specific population

Table 3 presents descriptive statistics and reliability measures for a survey assessing different aspects of health and well-being from a sample size of 80 respondents. Cronbach's alpha, a measure of internal consistency, is provided for each construct, indicating the reliability of the items within that domain. The generally high Cronbach's alpha values suggest that the survey items within each construct are reliable, enhancing the credibility of the assessment (Cronbach's alpha ranging from 0.614 to 0.968).

Figure 2 presents the mean scores for various aspects of health and well-being in a sample. The respondents' self-reported assessments are as follows: physical function (69.9), limitation due to physical health (74.1), emotional problem (75.8), energy or fatigue (61.6), emotional well-being (68.9), social functioning (76.6), pain (78.9), and general health (63.8). Higher scores generally indicate better-perceived health or well-being in each respective category.

Discussion

The objective of our study was to evaluate HRQoL among patients diagnosed with gout in the Madinah Region of Saudi Arabia. The terms QoL and HRQoL and "health" are sometimes used interchangeably.[12] According to the World Health Organization (WHO), health is defined as a state of complete well-being, encompassing physical, mental, and social dimensions, and goes beyond the absence of disease or infirmity.[13] "HRQoL," as defined by Bowling *et al.*,[14] includes optimal levels of mental, physical, and social functioning, incorporating aspects, such as the ability to perform various roles, maintain relationships, and perceive one's health and overall well-being. Subsequently, the term "QoL" was introduced to shift focus from solely relying on

Table 2: Characteristics of gout patients: Duration of gout, serum uric acid levels, medications used, number of attacks, and tophi or gravel presence

Studied variables	Number	Percentage
Duration of gout (median (IQR))	5.0 [2.0–8.0] years	
Latest SUA		
<6 mg/dL	33	40.7
Between 6 and 8 mg/dL	41	50.6
Above 8 mg/dL	7	8.6
Number of acute attacks (median (IQR))	2.0 [1.0–4.0]	
Uric acid level during the acute attack (median (IQR))	6.5 [5.5–7.4]	
Drugs used during acute attack		
No	58	72.5
NSAIDs	8	10.0
Steroid	2	2.5
Colchicine	12	15.0
Anti-hyperuricemia drugs		
No	65	81.3
NSAIDs	12	15.0
Steroid	3	3.8
Number of attacks		
No attacks	47	58.8
1–2 attacks	23	28.8
3 attacks	5	6.3
4–5 attacks	2	2.5
Above 6 attacks	3	3.8
Tophi or gravels		
No	77	96.3
Yes	3	3.8

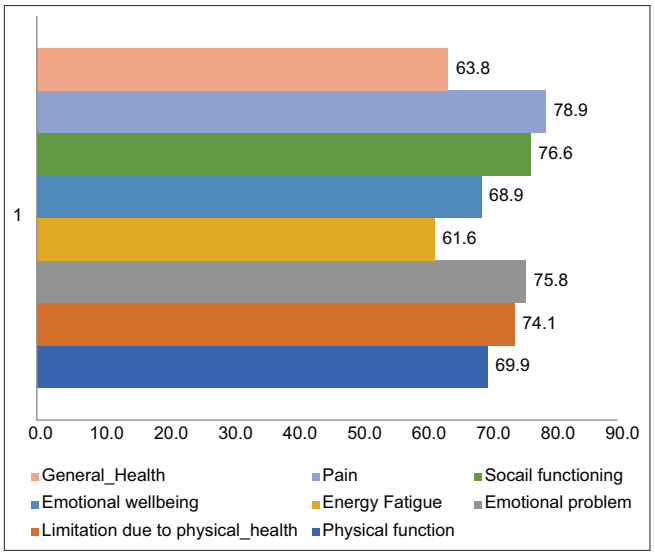

Figure 2: Scores of different domains of quality of life among patients with gout in Madinah Region

clinicians' assessments to incorporating patients' own expressions of preferences and values[15] It is essential to recognize that QoL and HRQoL are not synonymous; while both concepts relate to well-being, there are distinctions between them.[16] QoL is a multifaceted and comprehensive concept encompassing various dimensions influenced by individual perceptions, including physical, psychological, social, and environmental aspects. The WHO defines QoL as an individual's subjective evaluation of their position in life, considering cultural and value systems.[15]

In this study, the primary objective was to evaluate HRQoL of patients with gout in the Madinah Region. To achieve this, participants were selected through medical records and then invited to participate in a telephone-based interview to gather the necessary data. The researchers utilized the SF-36, a generic HRQoL measure, as the assessment tool to evaluate various aspects of the participants' well-being and quality of life. Using medical records as a source of recruitment and conducting telephone-based interviews, the study aimed to gather comprehensive and representative data from gout patients in the Madinah Region, shedding light on the impact of the condition on their overall quality of life and health status.

The findings revealed that the overall effect of gout on the SF-36 domains was minimal. All mean scores exceeded the threshold of 50. The domain most affected by gout was "Energy and Fatigue," with a mean score of 61.6, indicating some degree of reduced energy levels and fatigue among the participants. The next most affected domain was "General Health," with a mean score of 63.8, suggesting a relatively lower perception of general health status. However, the domains least affected by gout were "Pain," with a mean score of 78.9, indicating relatively well-managed pain levels, and "Social Functioning," with a mean score of 76.6, suggesting relatively preserved social interactions and functioning. Overall, these findings provide valuable insights into the specific aspects of HRQoL that may be impacted by gout in the studied population, highlighting areas that may require attention and support for optimal management and well-being. However, Khanna *et al.*[17] found that patients with chronic gout experienced significant reductions in their SF-36 Physical Component scores, with values ranging from 32.2 to 40.3. However, surprisingly, the SF-36 MCS scores for these patients were relatively near normal, ranging from 46.6 to 52.2. Indeed, various chronic medical conditions, including congestive heart failure (CHF) and coronary artery disease (CAD), have been associated with lower HRQoL. A longitudinal disease management program involving approximately 6000 patients with heart failure and CAD demonstrated significantly lower baseline PCS and MCS scores compared with demographically matched US population norms. The PCS scores were reduced by over half in patients with CHF, indicating a substantial impact on their physical HRQoL. Similarly, the MCS scores were also lowered by more than half.[18]

In this research, we employed the SF-36 to evaluate HRQoL. The tool demonstrated strong internal consistency, as evidenced by Cronbach's alpha values exceeding 0.7 for all domains, except for the energy and fatigue domain, which yielded a value of 0.647. The SF-36 is a generic HRQoL measure that is not specific to any particular age group, disease, or treatment.[19] It has been proposed as an outcome measure for clinical trials in gout. The concern with using the SF-36 in gout assessment is

Table 3: Descriptive statistics and reliability measures of the SF-36

	Mean	SD	Cronbach's alpha
Physical functioning			
Q3	54.4	39.9	0.957
Q4	74.4	37.3	
Q5	70.6	38.7	
Q6	66.9	38.1	
Q7	76.9	34.6	
Q8	67.5	38.2	
Q9	66.9	39.7	
Q10	69.4	37.7	
Q11	75.0	37.3	
Q12	76.9	38.9	
Role limitations due to physical health			
Q13	77.2	42.2	0.901
Q14	70.9	45.7	
Q15	74.7	43.8	
Q16	73.4	44.5	
Role limitations due to emotional problems			
Q17	75.0	43.6	0.968
Q18	75.0	43.6	
Q19	77.5	42.0	
Energy or fatigue			
Q23	60.5	27.2	0.647
Q27	62.0	29.1	
Q29	63.3	28.4	
Q31	60.8	27.8	
Emotional well-being			
Q24	63.3	27.8	0.732
Q25	74.3	28.7	
Q26	69.8	25.3	
2Q28	73.3	27.5	
Q30	64.0	29.1	
Social functioning			
Q32	76.6	30.1	0.701
Q20	54.1	33.9	
Pain			
Q21	75.0	29.1	0.881
Q22	82.8	24.4	
General health			
Q1	74.1	25.3	0.614
Q33	54.1	33.9	
Q34	50.0	30.0	
Q35	65.3	30.2	
Q36	75.3	28.0	

that the scores obtained from its scales may be influenced by associated comorbidities often observed in chronic gout, such as hypertension, diabetes, and coronary heart disease, rather than solely reflecting the impact of gout itself. A study from the United States involving 80 patients with gout found that while these patients had significant physical limitations and coexisting comorbidities, gout *per se* was associated with only a small disutility in health utility assessments, which evaluate the value or desirability of the health state. The presence of coexisting comorbidities might limit the responsiveness of the SF-36 to changes related to gout, as improvements in gout may not necessarily result in clinically meaningful improvements in generic HRQoL.[20-23]

Limitations and strengths

Our study has several notable limitations that should be considered when interpreting the results. One limitation is the recruitment of patients from arthritis clinics, which may have inadvertently excluded individuals with milder forms of the disease or minimal comorbidities who do not visit healthcare facilities frequently. Consequently, our findings might predominantly reflect the experiences of more moderate-to-severe gout patients, potentially limiting the generalizability of the results to the broader gout population. Nevertheless, our study did reveal that nearly 58.8% of the patients reported no gout attacks in the past year, indicating the presence of mild disease cases within the cohort. Another important limitation stems from the questionnaire-based nature of the study, introducing the potential for recall bias. As the data relied solely on patients' self-reported responses, the accuracy and completeness of the information gathered might be influenced by memory-related discrepancies or subjective perceptions. Despite these limitations, our study provides valuable insights into the impact of gout on patients' lives and identifies areas that warrant further investigation to enhance the understanding and management of this complex condition.

Conclusions

The findings indicated that gout had a relatively minimal overall effect on the SF-36 domains, as all mean scores surpassed the threshold of 50. The domain most affected by gout was "Energy and Fatigue," implying reduced energy levels and fatigue among the participants, with a mean score of 61.6. "General Health" was the next most affected domain, with a mean score of 63.8, suggesting a relatively lower perception of general health status. However, it is noteworthy that the domains "Pain" and "Social Functioning" were least affected by gout, with mean scores of 78.9 and 76.6, respectively. This indicates that participants reported relatively well-managed pain levels and preserved social interactions and functioning despite their condition. The study's findings offer valuable insights into the specific aspects of HRQoL that may be impacted by gout in the Madinah Region's population. Identifying areas that require attention and support for optimal management and well-being can aid healthcare providers in tailoring interventions to improve the HRQoL of gout patients effectively.

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Conflicts of interest

There are no conflicts of interest.

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