

Original Article

Correlation of Quality of Life with Gastroesophageal Reflux Disease amongst Qashqai Nomads in Iran

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Abstract

Background: Gastroesophageal reflux disease (GERD) is one of the most common gastrointestinal diseases encountered in today's clinic practice. GERD symptoms are troublesome and disruptive to the physical, social and emotional well-being of many patients. This is a cross-sectional study performed on Qashqai nomads of Fars Province in southern Iran to determine the impact of GERD on quality of life.

Methods: We randomly selected 748 subjects over the age of 25 years. Subjects completed two questionnaires conducted by interviews. The first one consisted of questions on gastroesophageal reflux symptoms. The second questionnaire was the Short Form Health Survey (SF-36), a generic health-related quality of life instrument that consists of 36 items divided into eight dimensions. It has a 0- to 100-point scale where higher scores show better functioning and well-being.

Results: Of 748 Qashqai migrating nomads who participated in the study, 717 subjects (mean age: 43 ± 14.2 years) completed the GERD questionnaire and only 372 subjects completed the SF-36 questionnaire due to their busy lifestyles, and GERD was reported in 106 subjects (28.5%). For all dimensions of SF-36, the mean score was consistently lower in patients with GERD compared to non-GERD subjects ($P < 0.001$). The dimension most frequently impaired was role-physical (40.9 vs. 77.3) followed by role-emotional (44.7 vs. 77.5), physical functioning (66.9 vs. 84.6), and general health (46.8 vs. 63.8). An association existed between impairment in quality of life and frequency ($P < 0.05$), but not severity, of GERD symptoms.

Conclusion: In this group of Qashqai nomads, all dimensions of health-related quality of life as measured by the SF-36 questionnaire were meaningfully impaired in subjects with symptomatic GERD compared to non-GERD subjects. There was an association between impaired quality of life and frequency, but not severity, of GERD.

Keywords: GERD, Iran, nomads, quality of life

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Introduction

Gastroesophageal reflux disease (GERD) is one of the most common gastrointestinal diseases encountered in the daily clinical setting.¹ Although it is generally believed to occur less frequently in Asia, its incidence and prevalence are predicted to rise to the level seen in Western countries.^{2,3} According to a population-based study in Tehran, Iran, the prevalence of GERD is noticeably higher than reports from other Asian studies.⁴⁻⁶ Depending on the population that has been studied, the prevalence of primary GERD symptoms such as heartburn (i.e., a burning feeling behind the breast bone) or acid regurgitation (i.e., an acid taste in the mouth) varies between 9% and 42%.⁷ GERD symptoms are troublesome and disruptive to the physical, social, and emotional well-being of many patients.⁸ An international expert panel defined "GERD as reflux symptoms sufficient to impair patients' lives."⁹

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Indeed, one of the most common reasons for consultation for upper gastrointestinal diseases is the impact of symptoms on everyday life.¹⁰

We have performed this cross-sectional study on Qashqai nomads of Fars Province in southern Iran to determine the effect of GERD on their quality of life. Qashqai nomads are one of the three minorities of nomads that reside in Fars Province. The Qashqai has the highest population of all the nomad tribes in this area. Qashqai migrate between winter quarters near the Persian Gulf and summer quarters in the plateaus of the Zagros Mountains, located in northern Fars Province. These nomads speak predominantly Turkish and have their own traditions. Their life style differs from urban and rural residents, as they live with their animals and move a distance of more than 500 kilometers in search of pasture for their cattle, possibly entering other provinces. The Qashqai do not experience the same stresses as urban residents, nor do they consume the same food. They live in tents and are more active physically than urban people.

We have previously studied the prevalence of GERD in this population and found that 33% had reflux that occurred at least once per week over the preceding year.¹¹ We have also reported the significant negative impact of irritable bowel syndrome (IBS) symptoms on quality of life in the same population.¹²

Patients and Methods

In a population-based study, 748 subjects were selected by the cluster random sampling method based on socio-economic sta-

tus census data from the five tribal groups, subgroups and family subdivisions of the Qashqai migrating nomads in Fars Province, southern Iran.

Shiraz University of Medical Sciences Ethics Committee approved this project. After coordination with the Fars Nomadic Affairs Organization and in the presence of a guide to the Qashqai nomadic areas, we visited the subjects in their tents and discussed the purpose of the research project in their native language. All subjects were then invited to visit the health center at their summer quarters and a written consent was obtained from each participant.

The study was conducted during the summer of 2007. We interviewed all subjects older than 25 years and of both genders to complete two questionnaires. The interviewers were familiar with the language and had received intense training. One questionnaire consisted of questions on gastroesophageal reflux symptoms. Its validity and reliability had been previously determined and confirmed.¹³ The two principal GERD symptoms in the questionnaire included heartburn, a burning feeling in epigastrium that rises through the chest in substernal area; and regurgitation, liquid coming back into the mouth leaving a bitter or sour taste. A subject was said to suffer from GERD when they reported heartburn and/or acid regurgitation in the preceding year with a frequency of at least once a week, irrespective of severity or duration.^{9,14,15}

We categorized subjects into three groups according to the severity of GERD: i) mild (treatment was not required), ii) moderate (treatment was required but daily activities were not restricted), and iii) severe (daily activities were restricted or there was a need for life style changes). Subjects with GERD symptoms underwent additional evaluation and treated by the physicians in the research team. We determined the frequency of reflux as the number of reflux or regurgitation episodes experienced by the patient on a daily, weekly, or monthly basis.

The second questionnaire completed for the subjects was the Short Form Health Survey (SF-36). This is a well-known generic health-related quality of life instrument that has been translated into many languages.^{16,17} SF-36 has also been translated and validated in Iran.¹⁸ It consists of 36 items divided into eight dimensions: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health. By definition, role-physical and role-emotional are the role limitations as a result of physical and emotional difficulties, respectively. A 0- to 100-point scale is used to transform the scores for each dimension, and higher scores show better functioning and well-being.¹⁹

Information was entered into a computer database and we used the SPSS version 11.5 (Chicago, IL) for data analysis.

Due to large sample size and continuity of variables in the questionnaire for comparison of GERD/non-GERD and frequent versus infrequent GERD, we used the student's *t*-test. *P* < 0.05 was considered significant; however, the results of the nonparametric Mann-Whitney U test were not different from the student's *t*-test.

Results

Of 748 Qashqai nomads who participated in the study, 717 subjects completed the GERD questionnaire (response rate: 96%). Subjects consisted of 284 (39.6%) males and 433 (60.4%) females. The mean age was 43.1 ± 14.2 years (range: 25–85). GERD had a prevalence of 33% (n = 237) in this population. 372 subjects completed the SF-36 questionnaire (response rate: 50%). There were fewer respondents to this questionnaire due to participants' lack of time and the need to return to tending their animals and daily routine. Of 372 subjects who completed the SF-36 questionnaire, 106 (28.5%) had GERD.

Table 1 shows the health-related quality of life for subjects who

Table 1. Correlation between health-related quality of life and gastroesophageal reflux disease (GERD) in Qashqai nomads of Fars Province in southern Iran.

| | Mean (SD) | | P-value |
|----------------------------------|---------------------|------------------------|---------|
| | With GERD (n = 106) | Without GERD (n = 266) | |
| Physical functioning | 66.9 (28.1) | 84.6 (23.8) | < 0.001 |
| Role-physical | 40.9 (47.1) | 77.3 (39.1) | < 0.001 |
| Body pain | 63.1 (22.4) | 76.5 (16.4) | < 0.001 |
| General health | 46.8 (19.9) | 63.8 (18.5) | < 0.001 |
| Social functioning | 68.5 (68.5) | 81.4 (19.8) | < 0.001 |
| Role-emotional | 44.7 (47.7) | 77.5 (39.2) | < 0.001 |
| Vitality | 55.3 (21.3) | 65.7 (18.1) | < 0.001 |
| Mental health | 52.7 (20.1) | 66.4 (18.9) | < 0.001 |
| Physical component summary (PCS) | 54.4 (22.7) | 75.6 (19.8) | < 0.001 |
| Mental component summary (MCS) | 55.3 (21.8) | 72.8 (18.8) | < 0.001 |

Table 2. Health-related quality of life in Qashqai nomads according to frequency of GERD.

| | Mean (SD) | | P-value |
|----------------------------------|--------------------------------|----------------------|---------|
| | Mild-to-moderate GERD (n = 52) | Severe GERD (n = 54) | |
| Physical functioning | 70.0 (26.9) | 65.1 (29.6) | 0.385 |
| Role-physical | 39.4 (46.2) | 45.8 (48.7) | 0.489 |
| Body pain | 60.6 (22.1) | 66.3 (22.6) | 0.193 |
| General health | 46.5 (22.6) | 49.0 (18.3) | 0.535 |
| Social functioning | 56.5 (22.8) | 55.7 (20.2) | 0.849 |
| Role-emotional | 64.9 (22.9) | 72.9 (19.9) | 0.058 |
| Vitality | 41.6 (47.0) | 49.3 (49.2) | 0.412 |
| Mental health | 53.0 (20.8) | 53.8 (20.6) | 0.848 |
| Physical component summary (PCS) | 54.1 (24.0) | 56.5 (22.6) | 0.590 |
| Mental component summary (MCS) | 54.0 (23.1) | 57.9 (20.9) | 0.362 |

Mild-to-moderate: ≤ 2 times/week; Severe: > 2 times/week

completed the SF-36 according to the presence or absence of GERD. In all dimensions of the SF-36, the mean score was consistently lower in patients with GERD compared to those with no GERD symptoms, which was statistically significant. As seen in Table 2, the mental (MCS) and physical component summary (PCS) scores are actual summaries of the eight dimensions of the SF-36. The MCS score dropped from 72.8 in non-GERD subjects to 55.3 in GERD subjects ($P < 0.001$). There was a similar decline in PCS score, from 75.6 (non-GERD) to 54.4 (GERD; $P < 0.001$).

Of 372 subjects who completed the SF-36 questionnaire, 106 (28.5%) had GERD. We categorized these subjects into two groups according to frequency of GERD. Mild-to-moderate GERD subjects experienced reflux at least twice in a one week period. Those with severe GERD had reflux more than twice weekly. In a comparison between patients with mild-to-moderate and severe GERD, none of the SF-36 dimensions showed any significant differences between the two groups (Table 2). There were no significant differences between the two groups in any of the physical and mental dimensions of SF-36.

Discussion

Health-related quality of life is an individual's perception of the functional effect of an illness and its therapy on himself or herself.^{19,20} We found lower health-related quality of life scores as measured by the SF-36 questionnaire in nomadic subjects with GERD symptoms. This impairment occurred in all aspects of health-related quality of life. Subjects with GERD reported a role-physical score of 40.9 compared with 77.3 for those without GERD. In role-emotional, the score was 44.7 (GERD) versus 77.5 (non-GERD), in physical functioning it was 66.9 (GERD) versus 84.6 (non-GERD), and for general health the score was 46.8 for GERD versus 63.8 for those without GERD.

Other authors supported findings of this study. According to McDougall et al., SF-36 scores were worse in GERD patients than in the general population.²¹ Similarly, in the US, subjects with frequent or nocturnal GERD had significantly lower SF-36 MCS and PCS scores compared to the general population.²² A Canadian population-based study also showed significantly lower MCS and PCS scores in individuals who had functional heartburn according to Rome II criteria.²³ In Germany, both physical and psychosocial aspects of health-related quality of life were significantly impaired in patients with GERD symptoms.²⁴

It has been reported that in patients with GERD, the presence of symptoms for two days per week is enough to impair health-related quality of life.⁹ This impairment is strongly associated with the patient's perception of symptom frequency.²⁵ This is consistent with the results of our study which have shown a lower quality of life score in patients with GERD in comparison to those with non-GERD. According to Wiklund et al., there is a significant correlation between a decrease in well-being and the severity of heartburn and acid regurgitation.²⁵ Similarly, Dimenas and colleagues have reported that increased severity of heartburn and regurgitation led to decreased health-related quality of life scores.²⁶ We did not find any significant differences in quality of life between subjects with severe GERD and those with mild-to-moderate GERD.

Flook and Wiklund believe that health-related quality of life is now a component of the GERD definition and its improvement reveals successful therapeutic intervention.²⁷ By recognizing the effect of GERD symptoms on patients' lives, practitioners can

determine treatment needs in newly diagnosed patients as well as those who need more effective treatment.²⁸

There were a few limitations in this study that should be considered in interpretation of the results. First, the definition of GERD was not consistent with other studies that often used the ROME criteria. Second, the information used to determine GERD symptoms and quality of life in the study subjects was collected through self-reporting. Third, only half the subjects agreed to complete the SF-36 questionnaire which could have created some bias in the results. In this group of Qashqai nomads of Fars Province, all dimensions of health-related quality of life as measured by the SF-36 questionnaire were meaningfully impaired in those who had GERD symptoms compared to non-GERD subjects.

Quality of life impairment was associated with the frequency, but not severity of GERD.

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