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# A Community-Based Survey on The Impact of Different Health Determinants on Quality of Life in Faiyum: A Cross-Sectional Analytical Study

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## A B S T R A C T

**Background:** Sustainable development goals including environmental protection, economic growth, and social equity, are associated with quality of life (QOL) concerns. **Objective:** The study aimed to assess the QOL score and its domains among study group. In addition, to measure the difference in the QOL domains between different gender and socio-demographic groups. **Methods:** This is a cross-sectional analytical study carried out in the Faiyum governorate. The survey included 2469 participants. Out of them, six hundred university students who represented all governorate districts were selected. They were asked to complete an initial questionnaire and ask their family members to complete a further four questionnaires. A socioeconomic scale and the WHOQOL-BREF scale were used in data collection. **Results:** A total 1281 (51.9%) were females and the mean age was 31.5 ± 14.2 years. Females had poorer QOL than males, particularly in the physical and psychological health domains (62.68 ± 16.82 versus 66.64 ± 17.14, and 60.69 ± 17.23 versus 63.27± 16.52) respectively. In males, there was a statistically significant association between the total QOL and being an urban dweller, having a poor level of education, having no employment, and having co-morbidities (beta -1.62, 3.78, -2.5, 6.48, and p-value 0.02, <0.001, 0.002, and 0.001 respectively).  However, being unmarried, having a low level of education, and having co-morbidities negatively affected the total QOL in females. **Conclusions:** Women experience poorer QOL than men. Different socio-demographic characteristics in each gender affected QOL. Residence and employment were risk factors for a low QOL score in males, versus marital status in females. Educational level and co-morbidities affected both genders.

## INTRODUCTION

According to Britannica, quality of life (QOL) is the degree to which an individual is comfortable, healthy, and able to participate in or enjoy life events. The term "quality of life" is inherently ambiguous, because it can apply to both an individual's personal experience of life and the living situation, they find themselves in. As a result, the meaning of the concept of QOL is extremely subjective. While one person may describe QOL in terms of riches or pleasure, another may describe it in terms of capabilities.[1] The World Health Organization (WHO) defines the concept as "an individual's view of their place in life concerning their objectives, aspirations, standards, and concerns in the context of the culture and value systems in which they live."[2] Wealth, employment, the environment, physical and mental health, education, recreation and leisure time, social connection, religious beliefs, safety, security, and freedom are all standard markers for QOL. [3-4] Politicians and economists use the term "quality of life" to assess a city or nation's livability. [5] Gender difference is a key element that affects QOL, as gender influences decision-making and health perception in different countries and cultures.[6] Cairo city in Egypt ranked 180 in the global QOL rankings

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among 195 cities around the world, with an index of 76.1 by midyear 2023 indices. [7] After launching the "Decent Life" initiative to improve the QOL in the neediest rural communities (2019), [8] Egypt's score improved to 81.61. [9] Al Faiyum is one of upper Egyptian governorates. It is located in the middle of the country, 130 km southwest of Cairo. It has a population of 3,848,708. It divided into six districts.[10] Increase in population growth resulted in increased rates of unemployment and inflation which increases the poverty level in Egypt. That dwindles the quality of life for a large segment of the population. Although, Egypt experienced periods of high economic growth in the past, but these were not durable enough to improve the quality of life for low-income groups. [11]

Due to the importance of the issue of QOL, many studies does not measure the total population's QOL but assess the QOL in terms of certain diseases. Research in these areas in Egypt is scarce, and the current study aims to address these deficiencies. In addition, an assessment of QOL in the community will help in monitoring and evaluating progress in achieving the nation's wider health objectives. The current research focused on measuring the QOL score and its domains among Fayum citizens and measuring the difference in the QOL domains between genders. In addition, it tested the effect of socio-demographic factors on the QOL domains.

**METHODS**

This is a cross-sectional study carried out in the Fayum governorate. The study conducted from October 2022 to February 2023. Target population was community members aged 18 years or more. Both genders were included.

A sample size of 3000 participants was calculated using Epi Info 2000 software, with a 95% confidence interval and precision of 2% and power of 90%. To address non-response and missing data issues, the sample size was expanded by 10%. To reach the target number of participants and to represent all districts of the governorate; a multistage sample was used. First stage was a cluster random sample to select three university faculties. After that 200 student from each faculty with 600 university students selected purposively to represent all six districts of the governorate.

**Data collection:** The students were asked to complete the questionnaire for themselves and further enroll four of their family members. The first step was to explain the study's purpose and objectives to these students. The second step was to explain items in the study questionnaire in detail. In the third step, investigators asked the students to answer the questionnaire for themselves to ensure their understanding of all the questionnaire items. In the fourth step, students assisted their families to complete the questionnaire. Student distributed the questionnaire, assisted their family member to fill the questionnaire but for illiterate or older participants student read and clarified the questions and filled participants' answers. Out of 3000 distributed, 2469 participants completed questionnaire giving a response rate of 82.3%

**Study tool:** Structured, self-administered questionnaires in Arabic were distributed to participants (the students and their families). The first section included basic information that indicated sex, age, marital status, residence, and co-morbidities such as hypertension, diabetes, and liver and kidney disease. The second section included a socioeconomic scale comprising 10 items regarding socio-demographic status, with a total score of 48. According to the socioeconomic scale, the socioeconomic status was classified into three levels (low level <40%, middle level 40%–70%, and high level >70%) of the total score.[12] The third section was the Arabic version of WHOQOL-BREF scale (WHO Quality of life-BREF scale). It is a standardized and self-report questionnaire, which assesses four domains of life quality (QOL). It is made up of four main domains: physical health, psychological health, social relationships, and the environment with 26 questions scored from one for "never, "to five for "always." The score, after being calculated by summation of scores changed to transfer scale, yielded a score that varied from 0 to 100. [13]

**Statistical analysis:** The data were analyzed using the Statistical Package for the Social Sciences application version 22. The independent student's t-test was used to compare quantitative measures between two groups. The three groups were compared using the one-way analysis of variance test. Multivariate linear regression analysis was utilized to test the association between dependent and independent variables. The statistical significance level was less than 0.05.

**RESULTS**

A total 2469 participants completed questionnaire. In the survey population, 1188 (48.1%) were males and 1281 (51.9%) were females both with a mean age of (31.5 ± 14.2) years. Of these, 1239 (50.2%) lived in rural areas, as opposed to 1230 (49.8%) who

**Table 1: Distribution of physical health QOL domains in both genders by demographic characteristics**

| | Males | | Females | | Total | |
|---|---|---|---|---|---|---|
| | Mean± SD | p-value | Mean± SD | p-value | Mean± SD | p-value |
| **Age group** | | | | | | |
| <40 years | 69.47 ± 15.73 | 0.001* | 64.54 ± 15.79 | 0.001* | 66.79 ± 15.95 | <0.001* |
| ≥40 years | 60.66 ± 18.41 | | 57.14 ± 18.51 | | 59.05 ± 18.52 | |
| **Residence** | | | | | | |
| Rural | 67.65 ± 16.89 | 0.026* | 63.31 ± 16.24 | 0.212 | 65.56 ± 16.72 | 0.004* |
| Urban | 65.44 ± 17.35 | | 62.13 ± 17.29 | | 63.60 ± 17.39 | |
| **Marital status** | | | | | | |
| Unmarried | 69.94 ± 16.36 | 0.001* | 63.48 ± 16.21 | 0.117 | 66.75 ± 16.59 | 0.001* |
| Married | 63.29 ± 17.26 | | 62 ± 17.29 | | 62.60 ± 17.29 | |
| **Education** | | | | | | |
| Illiterate | 56.15 ± 18.52 | <0.001* | 57.87 ± 17.09 | <0.001* | 57.08 ± 17.76 | <0.001* |
| Less than high school | 63.88 ± 17 | | 58.62 ± 18.27 | | 61.25 ± 17.83 | |
| High school and above | 69.74 ± 16.1 | | 65.49 ± 15.38 | | 67.50 ± 15.86 | |
| **Employment status** | | | | | | |
| Employed | 66.73 ± 16.58 | 0.824 | 63.23 ± 16.65 | 0.561 | 65.84 ± 16.66 | 0.003* |
| Not employed | 66.49 ± 18 | | 62.54 ± 16.86 | | 63.75 ± 17.31 | |
| **Comorbidities** | | | | | | |
| Chronic disease | 54.59 ± 18.58 | 0.001* | 51.71 ± 19.97 | 0.001* | 53.47 ± 19.16 | 0.001* |
| No chronic disease | 68.86 ± 15.89 | | 63.81 ± 16.05 | | 66.15 ± 16.17 | |
| **Socioeconomic status** | | | | | | |
| Low | 67.30 ± 17.08 | 0.132 | 60.39 ± 18.99 | 0.100 | 64.03 ± 18.31 | 0.611 |
| Middle | 66.01 ± 17.14 | | 63.26 ± 16.39 | | 64.55 ± 16.79 | |
| High | 68.69 ± 17.05 | | 61.66 ± 16.74 | | 95.27 ± 17.22 | |

*\*Significance difference p-value <0.05*

lived in urban areas. As regards marital status, 1081 (43.8%) were single, 1286 (52.1%) were married, 47 (1.9%) were divorced, and 55 (2.2%) were widowed. Those without a job numbered 1487 (60.2%), whereas working persons numbered 982(39.8%). More than half of the survey population were highly educated 1469 (59.2%), 773 (31.3%) were moderately educated, and 227(9.2%) of the study population were illiterate. As regards socioeconomic level, 1740 (70.5%) measured a middle level, 376 (15.2%) measured a high level, and 353 (14.3%) had a low level. Only 304 (12.3%) of the study group had chronic diseases.

The overall mean score of QOL was 59.16 ± 12.9; as regards QOL domains the mean physical health score was 64.59 ± 17.1, the mean psychological health score was 61.93 ± 16.9, the mean social relationship score was 48.15 ± 12.2, and finally, the mean environment score was 50.25 ± 17.1. There was a statistically significantly lower mean score of QOL among females (p=0.001). In terms of the physical health, mean score, 66.64 ± 17.14 in males versus 62.68 ± 16.82 in females, the mean psychological health domain in males was 63.27± 16.52 versus 60.69 ± 17.23 in females, and the overall QOL score was 60.06 ± 12.85 in males versus 58.31 ± 12.89 in females. In terms of social relationships and environmental domains, there was no statistically significant difference between the genders with a p-value >0.05.

A lower physical health domain score of QOL was associated with older age, being an urban inhabitant, being married, and illiterate, non-employed and with co-morbidities. Conversely, there was no association between the physical health domain and socioeconomic status. Among males, a lower physical health domain score was associated with being above 40 years old, an urban resident, married, illiterate, and complaining of co-morbidities but with no effect on employment, and socioeconomic status on their physical health. However, among females, being older, illiterate, and having co-morbidities were factors that showed a lower score in the physical health domain but

**Table 2: Distribution of psychological health QOL domains in both genders by demographic characteristics**

| | Males | | Females | | Total | |
|---|---|---|---|---|---|---|
| | Mean± SD | p-value | Mean± SD | p-value | Mean± SD | p-value |
| **Age group** | | | | | | |
| <40 years | 62.53 ± 16.41 | 0.026* | 60.13 ± 17.68 | 0.049* | 61.23 ± 17.15 | <0.001* |
| ≥40 years | 64.82 ± 16.65 | | 62.32 ± 15.77 | | 63.67 ± 16.29 | |
| **Residence** | | | | | | |
| Rural | 64.03 ± 16.15 | 0.088 | 61.19 ± 16.74 | 0.333 | 62.66 ± 16.49 | 0.032* |
| Urban | 62.39 ± 16.92 | | 60.25 ± 17.65 | | 61.20 ± 17.36 | |
| **Marital status** | | | | | | |
| Unmarried | 62.33 ± 16.49 | 0.049* | 58.24 ± 17.52 | 0.001* | 60.31 ± 17.13 | 0.001* |
| Married | 64.22 ± 16.51 | | 62.75 ± 16.72 | | 63.42 ± 16.64 | |
| **Education** | | | | | | |
| Illiterate | 59 ± 19.08 | | 62.16 ± 15.97 | | 60.70 ± 17.51 | |
| Less than high school | 62.32 ± 16.68 | 0.003* | 59.28 ± 17.42 | 0.132 | 60.79 ± 17.11 | 0.020* |
| High school and above | 64.44 ± 15.88 | | 61.16 ± 17.03 | | 62.72 ± 16.72 | |
| **Employment** | | | | | | |
| Employed | 64.16 ± 16.3 | 0.018* | 62.32 ± 17.39 | 0.097 | 63.69 ± 16.59 | <0.001* |
| Not employed | 61.83 ± 16.78 | | 60.29 ± 17.17 | | 60.77 ± 17.06 | |
| **Comorbidities** | | | | | | |
| Chronic disease | 59.18 ± 17.53 | 0.001* | 57 ± 18.05 | 0.014* | 58.33 ± 17.74 | 0.001* |
| No chronic disease | 64.02 ± 16.22 | | 61.06 ± 17.11 | | 62.44 ± 16.77 | |
| **Socioeconomic status** | | | | | | |
| Low | 65.41 ± 14.76 | | 60.90 ± 18.41 | | 63.28 ± 16.72 | |
| Middle | 62.41 ± 16.88 | 0.027* | 60.93 ± 17.15 | 0.489 | 61.62 ± 17.04 | 0.242 |
| High | 64.91 ± 16.32 | | 59.30 ± 16.55 | | 62.09 ± 16.66 | |

*significance difference p-value <0.05*

showed no effect of their residence, marital status, employment, and socioeconomic status on the quality of their physical health. (Table 1)

The psychological health domain of QOL was poorer in populations that were younger than 40 years old, urban dwellers, unmarried, with a low educational level, not employed, and had a chronic disease. Males in the study population aged less than 40 years, unmarried, with no job, with a lower level of education and middle socioeconomic status, and with a chronic disease showed a poorer score in the psychological health domain of QOL. Psychological well-being was significantly lower among females of a younger age, who were unmarried, and had a chronic disease. (Table 2)

There was a lower score in the social relationship domain of QOL among study populations with a lower level of education and chronic disease. Illiterate, diseased, with low socioeconomic status,

males and females who were in this category showed a low score of social relationship QOL. The social relationship domain of QOL was unaffected by age, residence, marital status, or employment status.

The environmental domain of QOL was low in rural dweller populations with low educational levels, no job, and living with chronic disease. Females who were unemployed, unmarried, with a low educational level, and with chronic disease had a worse score for environmental QOL. Illiterate males, living with a disease and low socioeconomic status, had a low score in the environmental domain. Age has no noticeable impact on the environmental domain of QOL.

Total QOL was poorer in participants who were older, unemployed, lowly educated, and living with chronic disease. Males who were older than 40 years, married, and illiterate, had a chronic disease, and of middle socioeconomic status showed a lower

**Table 3: Distribution of total QOL score in both genders by demographic characteristics.**

| | Males | | Females | | Total | |
|---|---|---|---|---|---|---|
| | Mean± SD | p-value | Mean± SD | p-value | Mean± SD | p-value |
| **Age group** | | | | | | |
| <40 years | 60.77 ± 12.46 | **0.006*** | 58.82 ± 12.85 | **0.013*** | 59.72 ± 12.71 | **0.001*** |
| ≥40 years | 58.56 ± 13.52 | | 56.76 ± 12.92 | | 57.74 ± 13.27 | |
| **Residence** | | | | | | |
| Rural | 60.39 ± 12.56 | 0.352 | 58.50 ± 12.26 | 0.617 | 59.48 ± 12.44 | 0.211 |
| Urban | 59.69 ± 13.19 | | 58.14 ± 13.42 | | 58.82 ± 13.34 | |
| **Marital status** | | | | | | |
| Unmarried | 60.88 ± 12.39 | **0.028*** | 57.41 ± 12.37 | **0.023*** | 59.17 ± 12.49 | 0.962 |
| Married | 59.24 ± 13.27 | | 59.06 ± 13.28 | | 59.14 ± 13.27 | |
| **Education** | | | | | | |
| Illiterate | 53.25 ± 13.98 | | 56.51 ± 12.17 | | 55 ± 13.11 | |
| Less than high school | 58.53 ± 13.10 | **<0.001*** | 55.85 ± 13 | **<0.001*** | 57.19 ± 13.11 | **<0.001*** |
| High school and above | 61.95 ± 12.07 | | 59.82 ± 12.74 | | 60.83 ± 12.46 | |
| **Employment status** | | | | | | |
| Employed | 60.57 ± 12.86 | 0.086 | 59.53 ± 12.78 | 0.097 | 60.30 ± 12.84 | **<0.001*** |
| Not employed | 59.25 ± 12.81 | | 58.02 ± 12.9 | | 58.39 ± 12.88 | |
| **Comorbidities** | | | | | | |
| Chronic disease | 53.70 ± 13.06 | **0.001*** | 52 ± 14.03 | **0.001*** | 53.04 ± 13.45 | **0.001*** |
| No chronic disease | 61.24 ± 12.47 | | 58.95 ± 12.6 | | 60.02 ± 12.59 | |
| **Socioeconomic status** | | | | | | |
| Low | 61.66 ± 13.14 | | 57.54 ± 13.46 | | 59.72 ± 13.43 | |
| Middle | 59.25 ± 12.61 | **0.005*** | 58.73 ± 12.77 | 0.156 | 58.43 ± 12.69 | 0.539 |
| High | 62.04 ± 13.29 | | 56.93 ± 12.94 | | 59.47 ± 13.35 | |

*\*Significance difference p-value <0.05*

total score of QOL. Females older than 40 years, unmarried, lowly educated, and who had chronic disease showed a worse score of overall QOL. On the other hand, residence had no discernible impact on overall QOL scores. (Table 3)

According to the results of the multivariate regression analysis, there was a statistically significant association between the total QOL and being an urban dweller, having a poor level of education, having no employment, and having co-morbidities with p-values of 0.028, 0.001, 0.002, and 0.001, respectively, in males. However, females who were unmarried, with a low level of education, and with co-morbidities that negatively affect the total QOL with a p-value <0.001. (Table 4)

**DISCUSSION**

Nowadays, the concept of QOL is complex and multidimensional, and it is widely acknowledged that enhancing QOL on a social and personal level necessitates improvement in all sectors.[14] The "Decent Life" initiative is considered an applied program for sustainable development goals based on international norms for poverty reduction and gender equality. [15] In alignment with a Tunisian study, the current study reported that being a woman and increase in age associated with a lower physical score of QOL.[16] An Iranian study showed that women exhibited significantly lower QOL scores in all subscales than males.[17] It could be explained by that woman had higher level of illiteracy, unemployment, poverty and greater accountability for household tasks. In agreement with our results, a Norwegian study found that men appeared to have a higher QOL than women did, as evidenced by the total score as well as the psychological and social quality of life domains.  On the other hands it disagreed with our findings about the association between lower educational level and each of lower level of physical, psychological, social, environment and total QOL scores.[18] A global study also found that women even in wealthy countries had a lower health-related QOL than men.[6] In contradiction to

**Table 4: Multiple linear regression analysis to predict total QOL score in both genders by demographic characteristics.**

| Variables | Overall QOL scale | | | | |
|---|---|---|---|---|---|
| | **B** | **SE** | **Beta** | **p-value** | **(95% CI)** |
| **Males** | | | | | |
| **Age group** (≥40 years) | 0.285 | 0.974 | 0.010 | 0.770 | −1.62:2.19 |
| **Residence** (Rural) | −01.62 | 0.74 | −0.063 | **0.028*** | −3.06: −0.17 |
| **Marital status** (Unmarried) | −0.286 | 0.94 | −0.011 | 0.761 | −2.13:1.55 |
| **Education level** (Illiterate) | 3.78 | 0.601 | 0.192 | **<0.001*** | 2.6:4.96 |
| **Employment** (Employed) | −2.52 | 0.792 | −0.095 | **0.002*** | −4.07: −0.96 |
| **Comorbidities (**Having comorbidities**)** | 6.48 | 1.02 | 0.183 | **0.001*** | 4.47:8.49 |
| **Socioeconomic status** (low) | 0.183 | 0.639 | 0.008 | 0.775 | −1.07:1.43 |
| **Females** | | | | | |
| **Age group** (≥40 years) | −0.644 | 0.934 | −0.022 | 0.491 | −2.47:1.18 |
| **Residence** (Rural) | −0.857 | 0.725 | −0.033 | 0.238 | −2.28:0.566 |
| **Marital status** (Unmarried) | 3.231 | 0.781 | 0.125 | **<0.001*** | 1.69:4.76 |
| **Education level** (Illiterate) | 2.85 | 0.618 | 0.147 | **<0.001*** | 1.63:4.06 |
| **Employment** (Employed) | −1.28 | 0.915 | −0.039 | 0.161 | −3.07:0.513 |
| **Comorbidities (**Having comorbidities**)** | 6.23 | 1.25 | 0.140 | **<0.001*** | 3.761:8.69 |
| **Socioeconomic status** (low) | −0.451 | 0.67 | −0.018 | 0.502 | −1.76:0.864 |

*\*Significance difference p-value <0.05*

our findings, a Brazilian study concluded that in comparison to males, females with chronic health conditions had a poorer QOL in the physical and psychological domains.[19] Health related condition as chronic disease and different co-morbidities significant affected the individual life quality especially when family support, and health care services were limited.[20] In agreement with our findings, European women are more likely to be among the more disadvantaged groups in terms of social inequality and QOL than men. Women have a lower likelihood to be economically engaged and independent than men, and they are more likely to be unemployed. Single women are especially vulnerable to poverty, which impacts QOL among females.[21] These results were in agreement with our results as married women in current study show a significant higher psychological, environmental and total QOL scores. Married women are more likely to have financial stability and a higher overall socioeconomic status. Consistent with a Chinese study, higher annual incomes, education levels, and activity levels were associated with higher QOL scores.[22] In agreement with our study, a Spanish study reported that high income and socioeconomic status contributed to the environmental domain of QOL.[23] Current results illustrated that younger age, highly educated, employed participants show higher total scores of life quality. That was in agreement with studies conducted in China and Tunisia which reported that QOL differs according to individuals'

characteristics such as their gender, educational levels, and socioeconomic status.[16-22] These results were in line with a global study, which found that, in males, income, physical function, living environment, and co-morbidities were all strongly associated with QOL. Females' QOL was closely correlated with their incomes, physical function, and marital status.[6] An American study clarified that women's education levels, employment status, and annual income were all significant factors in their overall QOL.[24]

***Limitations*** of current study included that data collector were university students that need more effort from researchers to confirm students' understanding about questionnaire filling steps. Conversely, this study is population-based study and highlight the large sample size with low proportion of rejections and losses. In terms of QOL, we emphasized the application of a tool developed and validated by the World Health Organization (WHO).

**Conclusions:** We concluded that QOL is a multidimensional concept. It is affected by socio-demographic factors. Females had a poorer level of QOL than males, especially in the physical and psychological health domains. The predictors for QOL in females were residence, educational, employment, and health status. Among males, the predictors were marital, employment, and health status. Current study highlights the vulnerability of females, lower education level, and older adults to

poor QOL. These findings are useful in developing and implementing an integrated developmental program targeted at increasing population QOL through working on the baseline items that deeply affect quality of life. Appling a regular screening for QOL in general practice to facilitate early assessment and implement possible interventions. Further research should address the association between QOL and both mortality and morbidities.

**Ethics Considerations**
Ethical approval was obtained from the Institutional Review Board (IRB) with a letter number R290 dated 9/10/2022 and informed consent was taken from all participants.

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