Measuring health-related quality of life and food insecurity in the general population in Lebanon during the third worst socio-economic crisis in history

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1. Introduction

This paper reports on the findings from a cross-sectional study assessing health related quality of life (HRQoL), food insecurity, and psychological distress among the Lebanese population during the ongoing socio-economic crisis. HRQoL is a key outcome indicator for evaluating public health interventions, while food insecurity and psychological distress are important determinants of well-being, particularly in contexts of instability. However, no large-scale population-based studies have been conducted to date to investigate these issues in Lebanon. The objectives of the study are to assess these outcomes in the general population using the EQ-5D-5L, the Food Insecurity Experience Scale, and the Beirut Distress Scale, and examine their interrelationships and predictors.

2. Highlights

- This is the first large-scale population-based study in Lebanon to assess HRQoL, food insecurity, and psychological distress during one of the worst socio-economic crises.
- Findings have significant policy implications targeted at enhancing the well-being of communities affected by crises.
- The study also set the grounds for the use of EQ-5D-5L in population health assessment and for more research on EQ-5D in countries facing similar issues as Lebanon

3. Methodology

Study design and sampling: A cross-sectional study was conducted among residents of Lebanon between July and September 2024. According to the WHO sample size calculator, 577 respondents were targeted for the study [1].

Data collection: Data were collected through an online questionnaire and face-to-face interviews to account for the rural areas in Lebanon, and the older population. Ethical approval for the study was obtained from the Institutional Review Board (IRB) at the American University of Beirut (AUB).

Survey Format: The survey intended to measure health-related quality of life and food insecurity in the general population in Lebanon. The questionnaire included the EQ-5D-5L, Beirut Distress Scale-22 (BDS-22), Food Insecurity Experience Scale (FIES) and a series of socio-demographic questions.

- **EQ-5D-5L** measures HRQoL. It is composed of 5 dimensions of health which are mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. We focused on the visual analogue scale (VAS) score that takes values between 0 (worst imaginable health) and 100 (best imaginable health) [2].

- **FIES** measures the severity of food insecurity. It is composed of 8 items such as "You were worried you would not have enough food to eat because of a lack of money or other resources?"… The total score ranges from 0 to 8 with higher score indicating greater severity of food insecurity. The total score can be categorized to classify individual-level FI status: food secure (raw scores = 0); mild FI (1–3); moderate FI (4–6) and severe FI (7–8) [3].

- **BDS-22** measures psychological distress. It is composed of 22 items such as "I feel despaired", "I get angry for ridiculous reasons" … Each item is rated on a 4-point Likert scale ranging from 0 (not at all) to 3 (all the time). After adding the responses of each item, the total score ranges from 0 to 66 with higher score indicating higher level of psychological distress [4].

- **Socio-demographic questions** such as age, gender, income…

- **General health-related questions** such as the impact of crises on physical and mental health.

4. Statistical analysis

Descriptive statistics were displayed as means and standard deviations (SD) for continuous variables or as counts (n) and proportions (%) for categorical ones.

Simple and multiple linear regressions were applied to investigate which factors are associated with HRQoL scores, and BDS scores. In the regression models, the VAS score and BDS score were used as the dependent variable while the sociodemographic and work-related characteristics were the independent variables. Beta (β) coefficients and their respective 95% confidence intervals (CI) were reported.

Logistic regression was used to examine the relationship between food insecurity and HRQoL, with food insecurity coded as "1" for moderate/severe ($\geq$4) vs. "0" for secure/mild (<4). Sub-group differences (e.g., by gender, age group, etc..) were also explored.

In all analysis, a p-value below 0.05 was considered statistically significant.

5. Results

A total of 528 respondents participated in the online survey. However, after eliminating incomplete responses the analytical dataset included 519 participants.

The results revealed a moderate level of HRQoL in the population, with a mean EQ-VAS score of 74.18 (SD=19.0). Approximately 14.3% of respondents experienced moderate to severe food insecurity, while the mean BDS-22 score was 15.3 (SD=11.6), indicating minimal psychological distress.

Table 1. Items of the EQ-5D-5L

Dimension		n (%)
Mobility		
	I have no problems in walking about	394 (77.3)
	I have slight problems in walking about	69 (13.5)
	I have moderate problems in walking about	30 (5.9)
	I have severe problems in walking about	15 (2.9)
	I am unable to walk about	2 (0.4)
Self-care		
	I have no problems washing or dressing myself	470 (91.4)
	I have slight problems washing or dressing myself	22 (4.3)
	I have moderate problems washing or dressing myself	15 (2.9)
	I have severe problems washing or dressing myself	3 (0.6)
	I am unable to wash or dress myself	4 (0.8)
Usual activities		
	I have no problems doing my usual activities	381 (74.1)
	I have slight problems doing my usual activities	72 (14.0)
	I have moderate problems doing my usual activities	49 (9.5)
	I have severe problems doing my usual activities	4 (0.8)
	I am unable to do my usual activities	8 (1.6)
Pain/Discomfort		
	I have no pain or discomfort	232 (44.8)
	I have slight pain or discomfort	165 (31.8)
	I have moderate pain or discomfort	89 (17.2)
	I have severe pain or discomfort	25 (4.8)
	I have extreme pain or discomfort	7 (1.4)
Anxiety/Depression		
	I am not anxious or depressed	201 (38.9)
	I am slightly anxious or depressed	165 (31.9)
	I am moderately anxious or depressed	110 (21.3)
	I am severely anxious or depressed	30 (5.8)
	I am extremely anxious or depressed	11 (2.1)

Table 2. Items of the FIES

	Yes	No
You were worried you would not have enough food to eat because of a lack of money or other resources?	92 (17.8)	426 (82.2)
Still thinking about the last 12 MONTHS, was there a time when you were unable to eat healthy and nutritious food because of a lack of money or other resources?	85 (16.4)	432 (83.6)
You ate only a few kinds of foods because of a lack of money or other resources?	80 (15.5)	437 (84.5)
You had to skip a meal because there was not enough money or other resources to get food?	62 (12.0)	455 (88.0)
Still thinking about the last 12 MONTHS, was there a time when you ate less than you thought you should because of a lack of money or other resources?	72 (14.0)	444 (86.0)
Your household ran out of food because of a lack of money or other resources?	42 (8.1)	477 (91.9)
You were hungry but did not eat because there was not enough money or other resources for food?	36 (7.0)	479 (93.0)
You went without eating for a whole day because of a lack of money or other resources?	21 (4.1)	495 (95.9)

Table 3. Items of the BDS

	Not at all	Some of the time	Most of the time	All the time
I feel despaired	237 (46.0)	225 (43.7)	44 (8.5)	9 (1.7)
I think life has no meaning	321 (62.1)	140 (27.1)	40 (7.7)	16 (3.1)
I feel empty	256 (51.5)	189 (36.7)	50 (9.7)	11 (2.1)
I feel on the edge	273 (53.4)	179 (35.0)	41 (8.0)	18 (3.5)
I feel I don't recognize myself	314 (60.7)	152 (29.4)	39 (7.5)	12 (2.3)
I get angry for ridiculous reasons	154 (29.8)	265 (51.3)	66 (12.8)	32 (6.2)
I isolate myself	241 (46.8)	218 (42.3)	48 (9.3)	8 (1.6)
I lost the desire to learn	304 (59.1)	132 (25.7)	35 (6.8)	43 (8.4)
I lack enthusiasm	235 (45.7)	218 (42.4)	45 (8.8)	16 (3.1)
I don't know what I want	231 (44.9)	211 (40.7)	47 (9.1)	26 (5.0)
My ideas are puzzled	198 (38.3)	232 (44.9)	63 (12.2)	24 (4.6)
I have constipation or diarrhea	329 (63.6)	132 (25.5)	40 (7.7)	16 (3.1)
I have stomach cramps	298 (57.8)	167 (32.4)	35 (6.8)	16 (3.1)
I have stomach heartburn	305 (59.5)	153 (29.8)	42 (8.2)	13 (2.5)
I find it difficult to relax	179 (34.7)	231 (44.8)	80 (15.5)	26 (5.0)
My mood changes for tiny matters	146 (28.2)	250 (48.4)	85 (16.4)	36 (7.0)
I am in a bad mood	181 (35.1)	268 (51.9)	56 (10.9)	11 (2.1)
I have memory troubles	227 (43.9)	212 (41.0)	59 (11.4)	19 (3.7)
I have difficulty concentrating	218 (42.2)	233 (45.1)	51 (9.9)	15 (2.9)
I don't know what values to adopt	333 (64.5)	157 (30.4)	20 (3.9)	6 (1.2)
I have panic attacks	356 (69.3)	124 (24.1)	26 (5.1)	8 (1.6)
I worry about little things	169 (32.8)	211 (40.9)	92 (17.8)	44 (8.5)

Significant correlations were observed: higher FI was associated with lower self-reported HRQoL (r = -0.248, p<0.001) and higher distress (r = 0.278, p<0.001), while distress was negatively associated with HRQoL (r = -0.48, p<0.001).

Regression analysis showed that HRQoL decreased with older age, negative perceptions of income, and physical impact of the economic crisis. Distress was higher among women, older adults, those who lost their jobs, those reporting negative perceptions of income, and individuals reporting mental health impact of the economic crisis. FI was more prevalent among those with lower educational attainment, financial hardship, and reporting physical health impacts of the economic crisis.

6. Discussion

- HRQoL in Lebanon is lower than in high-income countries and is significantly associated with both food insecurity and psychological distress..

- Vulnerable groups are women, older individuals, unemployed, people who have lost their jobs, and those with lower educational background.

- The situation in Lebanon has caused a significant burden on HRQoL, food security, and mental well-being.

- Policy implications: urgent need for interventions targeted at enhancing the well-being of communities affected by crises

- This study set the grounds for the use of EQ-5D-5L in population health assessment and for more research in countries facing similar issues as Lebanon.

7. References and data sharing

References
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