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Quality of life, human insecurity, and distress among Palestinians in the Gaza Strip before and after the Winter 2008–2009 Israeli war

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Abstract
Purpose This study investigates changes in the quality of life (QoL) of Gaza Palestinians before and after the Israeli winter 2008–2009 war using the World Health Organization's WHOQOL-Bref; the extent to which this instrument adequately measures changing situations; and its responsiveness to locally developed human insecurity and distress measures appropriate for context.
Methods Ordinary least squares regression analysis was performed to detect how demographic and socioeconomic variables usually associated with QoL were associated with human insecurity and distress. We estimated the usual baseline model for the three QoL domains, and a second set of models including these standard variables and human insecurity and distress to assess how personal exposure to political violence affects QoL.
Results No difference between the quality of life scores in 2005 and 2009 was found, with results suggesting lack of sensitivity of WHOQOL-Bref in capturing changes resulting from intensification of preexisting political violence. Results show that human insecurity and individual distress significantly increased in 2009 compared to 2005.
Conclusion Results indicate that a political domain may provide further understanding of and possibly increase the sensitivity of the instrument to detect changes in the Qol of Palestinians and possibly other populations experiencing intensified political violence.

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Keywords Quality of life · Distress · Human insecurity · Palestinians · Gaza strip · Comparing QoL

Introduction

There is increasing emphasis in public health on the evaluation of subjective health states as complements to conventional health measures (mortality and morbidity) for exploring the impact of different social and economic conditions on health. This interest is partially sparked by demographic changes and rising life expectancy in general, with older people spending increasing amounts of time in less than full health [1]. This demographic change is prompting demand for subjective health measures to address the rising burden of chronic diseases; and concerns beyond symptoms and survival [2], especially given the belief that patients are usually the best evaluators of their health status [3, 4]. In addition, there is overwhelming evidence demonstrating that subjective health indicators, including quality of life measures (QoL), can predict mortality among various groups, including patients and the general population [5–7]. Quality of life measures have demonstrated usefulness in examining the experiences of populations in highly stressful situations, such as migrants and refugees [8]. Recent articles have used quality of life measures to understand the health of persons during wartime and under military occupation [9, 10].

Since September 2000, civilian exposure to political violence in the West Bank, Gaza Strip, and East Jerusalem was heightened, and there was a dramatic deterioration in the quality of life of Palestinians living under Israeli military occupation. While conventional measures such as mortality, morbidity, disability, and access to health services were being reported [11], there was little attention

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paid to other consequences of exposure to direct and other forms of political violence (closures, siege, and spiraling unemployment) on the health and well-being of surviving ordinary people. Siege conditions include the seizure and destruction of property, destruction of housing and land, the restrictions on travel within and outside of Palestinian areas, the ban on direct selling of goods for export, and restrictions on the import of medicines, fuel, basic foods, and building materials. Under the closure and siege Palestinians have experienced varying levels of political violence. This political violence has been experienced to considerable extent by all Palestinians since 2000, but most intensively by Palestinians living in the Gaza strip.

By studying the quality of life of Palestinians, using QoL measures developed by the World Health Organization, we are able to develop a portrait of the lives of ordinary Palestinians in the West Bank, the Gaza Strip, and East Jerusalem. The impact of Israeli military occupation and siege on life quality can then be directly measured in terms of lived experience of individuals with political violence. For this purpose, quality of life measures, and the WHO instruments for assessing quality of life, provide an exceptionally useful way to describe the effects of political violence on the lives of Palestinians.

This study analyzes and compares two health-related data sets from the Gaza Strip, one obtained in 2005, just before the Palestinian Legislative Council elections of January 25 2006, when the Gaza Strip was still not under the intensified siege imposed following the 2006 election victory of Hamas. The siege is part of an Israeli policy of isolation banning the large majority of Gazans from leaving the strip, restricting the movement of patients and sick people in and out of the area, prohibiting the export or import of goods to and from the Strip, and imposing many restrictions on the entry of food, fuel, and other basic survival items [12]. The second set of data was obtained in 2009, 6 months after the winter 2008–2009 Israeli war on the strip and with continued siege conditions.

The war entailed intensive military attacks on the Gaza strip for 3 weeks, where 1400 persons were killed, many civilians, including more than 400 children and 100 women, and about 5380 were injured, including 1800 children and 800 women [13]. The scale and intensity of the attack were described as unprecedented [14]. Massive destruction resulted, leading to displacement and the loss of shelter, long interruption of electrical supplies, deterioration of water supplies and food insecurity. Continued Israeli siege conditions since then have severely restricted the ability of Palestinians in Gaza to rebuild their homes, economy, and lives.

In this paper, we investigate whether there were (1) changes in the quality of life of Palestinians in Gaza Strip between 2005 (before the intensification of the siege) and 2009 (6 months after the Israeli military attack and following the intensification of siege conditions), (2) the extent to which the WHO quality of life measures adequately measure the changing situations of Palestinians, (3) whether the quality of life measure is responsive to newly and locally developed measures of human insecurity and individual distress appropriate to the Palestinian population, and (4) the association(s) between various socio-demographic characteristics and quality of life reports.

While the WHO quality of life instrument has been widely used around the world, few studies have compared population level quality of life scores over time. Some studies have assessed the impact of traumatic events (including natural disasters) on quality of life scores [15–17], but, to our knowledge, this is the first study to compare population level quality of life scores before and in the aftermath of war and the intensification of political violence.

Methods

The World Health Organization has developed both an extensive instrument that measures of the quality of life on six domains, and an abbreviated instrument for measuring the quality life (WHOQOL-Bref) that captures the physical, psychological, and environmental domains, as well as a social domain. This shortened instrument is especially useful in large population surveys, where the quality of life is only one of many features of person's lives and contexts that are measured.

The original WHO quality of life scale was built on 100 questions aimed at assessing the level of satisfaction and well-being of individuals over six quality of life domains. The WHOQOL-Bref is a summarized version (using 26 questions) of the original WHO quality of life scale. This revised instrument captures quality of life on four domains—physical, psychological, environmental, and social [2, 4]. This shortened instrument has been validated in various international field trials and thus is considered appropriate to measure the quality of life of both ill and well populations. Additional field trials have shown that it is a useful instrument in epidemiological studies comparing the impact of different conditions on health and quality of life [3, 5, 8]. This includes the quality of life of persons living in highly stressful situations, such as migrants and refugees [8]. Various studies utilizing the 26-item instrument, after the WHO international field trials, have also affirmed the reliability and validity of the instrument in assessing the quality of life of persons during periods of warfare and war-related occupation. However, it is also known that measures of quality of life are culturally conditioned and subject to the influences of immediate socio-political conditions that are unique to each population.

Therefore, a preliminary qualitative study was done to assess the applicability of the WHO abbreviated quality of life instruments to the Palestinian situation [9]. This study demonstrated that the social dimension is unsuitable for use among Palestinians given that only three questions define this domain, and one of the questions about sexual satisfaction was not used because of reservations expressed by participants in focus group discussions during the phase of instrument adaptation and validation [9]. This social domain was dropped as a measure of the quality of life of the Palestinian population.

The qualitative study also suggested that, in the Palestinian situation, it was essential to measure human insecurity and distress as key measures of individual and family exposure to political violence. Accordingly, questionnaire items to measure human insecurity and distress were developed that are attuned to the way in which Palestinians express their emotions and symptoms in the face of massive exposure to political violence [18].

This qualitative study was followed by a pretest quantitative study that focused on validating and developing further quality of life instruments that suit the Palestinian context [19]. Questions were developed to measure two dimensions of social suffering (human insecurity and individual distress) that measure the impact of political violence Palestinians endure. Jennifer leaning's conceptualization of human insecurity [20] was used to assess reports of fears and threats to home, community, and the future and to develop a human insecurity scale composed of 10 items assessing the levels of fears and threats to personal safety, safety of respondent families, and respondent ability to support their families; loss of income, home, and land; and fear about respondent's future and the future of their families [21]. In addition, a locally developed and validated distress scale [19] was also used. The scale is composed of 12 items focusing on fears of anxiety, incapacitation, and displacement, in addition to fears related to losing control over the important things in their lives. Both scales had high internal consistency (alpha scores over 0.8 in both scales) and loaded well in the factor analysis conducted. The factor analysis indicated the presence of two factors, which we have defined as the Individual Distress and Human Insecurity scales. The factor loadings had adequate fit indices according to both exploratory and confirmatory factor analysis. Table 1 provides an overview of the variables included in each of these scales.

Scoring for the WHOQOL-bref domains was conducted based on the WHO guidelines. The human insecurity and individual distress scale scores were derived using a weighted mean based on weights derived through the use of principal component analysis. The human insecurity and individual distress scales were then transformed so that scores ranged from a value of 0 for the least insecure and least distressed and 100 for the most insecure and most distressed. While higher scores are better for persons in the WHO quality of life domains, lower scores are better for persons on the insecurity and distress domains.

Table 1 Description of Scales (measured using a likert scale from 1–5)

Individual distress
1. To what extent did you feel unable to control the important things in your life?
2. To what extent did you feel unable to cope with all the things that you had to do?
3. To what extent did you feel worried?
4. To what extent did you feel frustrated?
5. To what extent did you feel incapacitated?
6. To what extent did you feel humiliated?
7. To what extent did you feel lonely?
8. To what extent did you feel anxious?
9. To what extent did you feel sad?
10. To what extent did you feel angry?
11. To what extent did you feel fed up with life?
12. To what extent did you feel unable to cope with all the things that you had to do?
Human insecurity
1. To what extent do you fear for yourself in your daily life?
2. To what extent do you fear for your family in your daily life?
3. To what extent do you feel worry/fear not being able to provide your family with daily life necessities?
4. To what extent do you worry/fear about losing your source of income or your family's source of income?
5. To what extent do you worry/fear losing your home?
6. To what extent do you feel worry/fear from displacement or uprooting?
7. To what extent do you worry/fear for your future and your family's future?
8. To what extent do you feel fear on your safety?
9. To what extent do you feel fear on the safety of your family?
10. To what extent does your family fear feel on your safety?

Finally, a population survey using all of these instruments was conducted in 2005 to assess the quality of life of Palestinians in the global context, as part of the WHO's validation of the WHOQOL-Bref instrument in different international settings. That study demonstrated that the Palestinian quality of life on the physical, psychological, and environmental dimensions is very poor compared to that in other populations [19]. The same instrument was also used in the 2009 study that aimed to assess the impact of war and siege on people's lives in the Gaza Strip.

Sampling

The paper relies on data from two separate surveys independently conducted in 2005 and 2009. The 2005 study

utilized a multi-stage cluster sample design to select a sample of 1,023 households representative of households residing in the occupied Palestinian territory (the West Bank and the Gaza Strip) [19]. Twelve households were selected in each of the pre-selected 84 enumeration areas using systematic sampling. One respondent from each household was then chosen randomly through the kisch table technique (the same technique was used in both surveys). The questionnaire was administered by face-to-face interviews. A total of 1008 adults representing 1008 households participated in the study: 665 in the West Bank and 343 in the Gaza Strip equally divided between males and females. For the purposes of the present study, only residents of the Gaza Strip were included in the analysis.

The sample of the 2009 study was derived in two stages, using the sampling frame extracted from the 2007 housing and establishment census. The Gaza Strip was divided into 11 strata, based on governorates and types of locale (urban, rural, refugee camp). The first stage of sampling was the enumeration areas (EA) from which a random systematic sample was extracted to represent all strata. Overall, 63 EAs were selected out of a total of 1630 EAs. The second stage was based on the estimated number of households within each EA: For large EAs, 80 households were chosen using systematic random sampling; for small EAs, the number of selected households was either 35 or 50. In total, 3030 households were targeted for interview. Fieldworkers visiting a given EA were instructed to select the required number of households using the starting point for the EA, provided by Palestinian Central Bureau of Statistics (PCBS) based on the sampling frame information, and then randomly chose the required number of households moving clockwise from the beginning of the EA until the needed number is achieved. As the landscape of the Strip had been deformed during the military attack, selection based on maps was not useful, so, taking account of these circumstances, area sampling was used to obtain the needed number of households. Fieldworkers did not include destroyed households in the sample and continued visiting households until they obtained the specified number within each EA. Families whose homes were destroyed and who were housed with other families or elsewhere were included in the sample separately from the host family. Similar to the 2005 study, one adult aged 18 years or over from each household was selected using the Kish table method and responded to the Quality of Life portion of the survey. Men were selected from households with even numbers, and women were selected from households with odd numbers. A total of 3102 households were visited, with 3017 household questionnaires completed. All participants provided their informed consent prior to their inclusion in this study.

Analyses

The dependent variables of interest included the WHO-QOL-Bref domains, human insecurity scale, and Individual Distress scale scores. The independent variables included in the analyses are age, sex, education (years of schooling), employment status, and grouping based on the study population (year) the individual belonged to. We began the analysis by examining the data descriptively with univariate statistics. We then examined bivariate associations between quality of life domain scores and survey year as well as by other socio-demographic characteristics. For the multivariate analysis, we conducted a series of Ordinary Least Squares (OLS) regressions in order to examine of how the demographic and social and economic variables usually associated with the quality of life (that is, age, sex, years of schooling, labor force participation, employment status, and year of observation) were associated with the experience of human insecurity and individual distress.

Following this, we estimated the baseline model for the three WHO quality of life domains, and then a second set of models that included both these standard variables as well as the indices of human insecurity and individual distress to assess how personal exposure to political violence affects the quality of life. Sample weights were taken into account in the analyses. All statistical analysis was conducted using STATA version SE 11. We used the robust command in STATA in order to estimate robust standard errors.

Results

Table 2 provides an overview of the samples' characteristics. The Gaza Strip sample population for the 2005 study consisted of 344 individuals, while 3017 individuals participated in the 2009 study. A total of 52 participants (about 1.5 % of the sample) were excluded from the final analysis due to missing information on the dependent variables. Half of the surveyed population consisted of men. The average age of respondents 18 and above was about 36 years. The average level of education was 10.6 years. Fifty-four percent of the surveyed population was outside the labor force—these consist of a large number of men and women who do not work and do not want to work, as well as many others who are not working, would like to work, and are discouraged from seeking work. Nearly one-quarter of those in the labor force (that includes persons working and looking for work) were unemployed. The characteristics of the participants from the two study groups are similar. These descriptions of the sample population are also consistent with what other surveys have shown is the case in the Gaza Strip during this period.

Table 2 Descriptive statistics[a]

Demographic characteristics			
	Pooled sample	2005	2009
	%		
Male	50.26	46.41	50.13
Outside labor force	53.94	56.89	53.63
Employed	35.24	31.13	35.68
Unemployed (of total)	10.82	11.98	10.69
Unemployed (of those in labor force)	23.49	27.78	23.05
% total sample	100	10.06	89.94
	Mean (SD)		
Age (years)	35.75 (14.044)	36.49 (14.068)	35.68 (14.063)
Education (years)	10.64 (4.073)	10.38 (4.113)	10.67 (4.069)
$N = 3309$			

[a] We tested whether there were statistically significant differences between the two samples based on these descriptive characteristics. None of the differences were found to be statistically significant at the $P < 0.10$ level. We also examined potential differences in reported health status (not shown) and found no statistically significant differences

Table 3 Quality of Life domain and insecurity and distress scores for pooled sample and split by sample year

	Pooled sample	2005 sample	2009 sample	
	Mean (SD)			
Physical	69.46 (17.864)	65.94 (19.451)	69.84 (17.664)	***
Psychological	59.89 (15.841)	59.46 (15.372)	59.93 (15.895)	
Environment	48.65 (14.188)	49.29 (13.095)	48.58 (14.305)	
Human insecurity	68.67 (18.185)	59.67 (21.354)	69.68 (17.509)	***
Individual distress	49.32 (22.072)	44.19 (23.025)	50.13 (21.924)	***
$N = 3309$				

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ (P value based on results of t test)

Table 3 presents the mean scores on the WHO quality of life domains as well as the Palestinian context-specific human insecurity and individual distress scales for the pooled sample, as well as separately for the 2005 and 2009 samples. T-tests were conducted to test whether the differences in average scores were significantly different across the two samples. Using the WHO instrument, the average scores for the quality of life dimensions of Palestinians in the Gaza strip (note that these data are based on the pooled 2005–09 sample) range from a low of 48.7 (out of a maximum possible score of 100) in the environment domain to 69.5 in the physical quality of life domain (see Table 3). The average for the psychological quality of life domain is 59.9. The average domain scores are similar for the two samples on the psychological and environment domains. However, there is some difference between the average scores for the physical quality of life domain in 2005 and 2009 where for the 2005 sample the average of this domain is 65.94 (out of a maximum score of 100) compared to 69.84 for the 2009 sample. The differences between the two samples are statistically significant at the $P < 0.001$ level. For the Palestinian context-specific dimensions, the Human Insecurity measure has an average of 68.7, indicating generally high levels of insecurity. Individual Distress is somewhat better on average, with an average value of 49.3. The differences between the two samples vary substantially; for the human insecurity scale, the mean score for the 2005 sample was 59.67 compared to 69.68 for the 2009 sample, indicating higher reports of insecurity in 2009. For the individual distress scale, the mean score for the 2005 sample was 44.19 compared to 50.13 for the 2009 sample, again indicating greater reports of individual distress among participants of the 2009 study.

Table 4 presents the results of the multivariate analysis where we examined the impact of various socio-demographic characteristics and survey year on WHO quality of life domain scores. Based on these results, males have a slightly better physical quality of life than females; whereby males have average scores that are 2.1 points greater than those of females on this domain. This advantage, however, is not observed for the psychological and environment quality of life domains/dimensions (Table 4). Each additional year of education increases each of the three WHO quality of life domain scores. Being unemployed is associated with a 5.9 point decrease in the physical quality of life domain score; a 7.8 point decreases in the psychological quality of life score, and a 6.3 point decreases in the environment quality of life score compared to those who are employed. Persons who are not in the labor force also have a considerably lower quality of life than the employed, but the

Table 4 Multivariate analysis of WHOQOL-BREF domains, select socio-demographic characteristics, and study year

Independent variables	Physical			Psychological			Environment		
	β	SE	*P* value	*B*	SE	*P* value	β	SE	*P* value
Male	2.0741	0.8257	**0.012**	0.3251	0.7642	0.671	−0.3674	0.7036	0.602
Age	−0.4086	0.0220	**<0.001**	−0.1797	0.0204	**<0.001**	0.0099	0.0188	0.596
Years of Education	0.6792	0.0758	**<0.001**	0.8450	0.0702	**<0.001**	0.7977	0.0646	**<0.001**
Employment- (employed = ref)									
Outside of labor force	−3.5238	0.8693	**<0.001**	−2.4554	0.8046	**0.002**	−2.2770	0.7407	**0.002**
Unemployed	−5.8970	0.9690	**<0.001**	−7.8160	0.8968	**<0.001**	−6.3045	0.8257	**<0.001**
2009 sample year	2.7619	0.9273	**0.003**	−0.3859	0.8583	0.653	−1.5045	0.7902	0.057
Constant	75.8653	1.8234	<0.001	59.6483	1.6875	<0.001	43.2400	1.5536	<0.001
Adj. R2	0.193			0.1248			0.0755		
F-statistic	132.84			79.6			46.04		
$N = 3309$									

Table 5 Human insecurity and individual distress

Independent variables	Human insecurity			Individual distress		
	β	SE	*P* value	B	SE	*P* value
Male	−1.8192	0.9134	**0.046**	−2.8669	1.0937	**0.009**
Age	−0.2017	0.0243	**<0.001**	0.0448	0.0291	0.124
Years of education	−0.5391	0.0838	**<0.001**	−0.8934	0.1004	**<0.001**
Employment (employed = ref)						
Outside of labor force	0.4447	0.9616	0.644	1.8406	1.1514	0.110
Unemployed	1.0537	1.0719	0.326	13.1116	1.2835	**<0.001**
2009 sample year	10.7312	1.0258	**<0.001**	7.5390	1.2283	**<0.001**
Constant	72.5120	2.0169	<0.001	49.4826	2.4150	<0.001
Adj. R2	0.0573			0.0771		
F-statistic	34.53			47.05		
$N = 3309$						

magnitude of the differences is not as large as those between the employed and unemployed.

There is not a great difference between the quality of life of Gazans in 2005 and 2009, although physical quality of life seems to have increased by 2.8 points during the later year. The psychological and environment domains are not significantly different in the 2 years.

We tested for interactions by education and employment, with the idea that education may have an important buffering effect, but these interactions were not found to be significant and were thus excluded from the final model. We additionally tested for interactions by sex, with the idea that unemployment may have a more negative impact on males. These interactions were also tested by year. However, no statistically significant differences between males and females in the impact of their social and economic situations on the quality of life were found. Thus, those individual factors that affect the quality of life in 2005 have the same impact in 2009.

While the WHO quality of life indices do not worsen with the winter war on Gaza and the continued siege, the context-specific domains show that human insecurity and individual distress increased considerably between 2005 and 2009 (Table 5). Human insecurity increased by 10.7 points between the two study periods, while people surveyed in 2009 had on average individual distress scores that were 7.5 points higher than individuals surveyed in 2005.

The final models presented in Table 6 examine the impact of individual distress and human insecurity on quality of life domain scores. In fact, when added to the standard demographic, social, and economic explanations of WHO quality of life domains, the indicator of individual distress specific to the Palestinian population significantly

Table 6 WHOQOL-BREF domains with Palestinian scales as determinants

Independent variables	Physical			Psychological			Environment		
	β	SE	P value	β	SE	P value	β	SE	P value
Male	1.1957	0.7609	0.116	−0.6874	0.6593	0.297	−1.3288	0.6271	**0.034**
Age	−0.4004	0.0205	**<0.001**	−0.1629	0.0178	**<0.001**	−0.0091	0.0169	0.592
Years of education	0.4062	0.0708	**<0.001**	0.5294	0.0614	**<0.001**	0.5022	0.0584	**<0.001**
Outside of labor force	−2.9773	0.8003	**<0.001**	−1.8024	0.6934	**0.009**	−1.7667	0.6595	**0.007**
Unemployed	−2.0555	0.9059	**0.023**	−3.1556	0.7849	**<0.001**	−2.9821	0.7466	**<0.001**
2009 sample year	5.2152	0.8695	**<0.001**	2.2523	0.7534	**0.003**	1.9030	0.7165	**0.008**
Human insecurity	−0.0241	0.0148	0.103	0.0041	0.0128	0.750	−0.1479	0.0122	**<0.001**
Individual distress	−0.2910	0.0124	**<0.001**	−0.3558	0.0107	**<0.001**	−0.2415	0.0102	**<0.001**
Constant	92.0177	2.0163	<0.001	76.9558	1.7471	<0.001	65.9122	1.6617	<0.001
Adj. R2	0.3166			0.3504			0.2677		
F-statistic	192.55			224.01			152.13		
$N = 3309$									

improved the variance explained by the multivariate regression model. Each point increase in the individual distress index resulted in a decrease in 0.29 points in the physical domain, 0.35 points in the psychological domain, and 0.24 points in the environment domain of quality of life. The measure of human insecurity negatively affects the environmental quality of life, with every 1 point increase in human insecurity decreasing the environment quality of life domain score by 0.15 points.

Discussion

The results of the study indicate that the average quality of life of Palestinians on the WHO physical, psychological, and environment domains is low and is among the lowest of any population in the world [19, 22]. The mean scores from the international field trial range from about 68 points based on the 100-point scale for the environment domain a score slightly above 80 points for the physical domain [22]. The mean quality of life scores for both samples (Table 3) are lower than the international mean, particularly for the environment domain. The factors associated with quality of life in this study are generally consistent with other studies conducted in the occupied Palestinian territory [19] and elsewhere [23, 24]. Education and employment have shown to be particularly important protective variables across both sample years.

The December 2008–January 2009 war on the Gaza Strip was described by the Israeli press as the harshest military assault since the territory was captured by Israel during the 1967 war [25]. The scale and intensity of the attacks were unprecedented and devastated the infrastructure, economy, and population, with reports indicating that the population suffered severe psychological injury, stress, and grief on a broad scale [26]. Yet, despite the devastating attack on the Gaza Strip, change in population level quality of life scores between the two study periods was minimal, particularly in the environment and psychological quality of life domains, which we expected to be the most affected by the war. The only change that was seen in the scores of the WHOQOL domains was in the physical quality of life domain scores, which in fact showed differences that were unexpected, indicating that average scores on this domain were better among the 2009 sample. While there variations in the characteristics of the sample are minimal between the two study periods, we can only speculate that given the subjective nature of these measures within a context of intensified political violence that resulted in widespread injury and destruction, perceptions of what constituted good health may have varied at each time period.

While the average quality of life did not differ between 2005 and 2009, substantial increases in human insecurity and individual distress were evident. The human insecurity and individual distress scales are measures of exposure to political violence. Scores on these scales were strong predictors of lower quality of life scores on the WHO domains for 2005 and 2009. Thus, instruments that accurately reflect the aspects of quality of life of persons during devastating society-wide crises or among other high-risk populations may be more appropriate to measure the deterioration in the quality of life than the standardized WHO instrument. They can also be used as complementary measures of well-being alongside the standard WHO instruments.

As Mataria et al. have shown in their analysis of the 2005 data for the West Bank and Gaza Strip, additional domains developed based on questions added to the instrument explained more variance than conventional

indicators [19], indicating the potential for a political domain. Our conceptualization of a political domain is based on the results of the qualitative study conducted to validate the WHOQOL-Bref instrument in the Palestinian context [9]. As reported by Giacaman et al. in this study [9], a political domain would include items on political freedoms, self-determination, democratic participation, and participation in political decision making.

While the quality of life literature refers to the "homeostatic" nature of reports of quality of life (sometimes referred to as subjective well-being), where population scores tend to remain relatively consistent over time [27, 28], extraordinary events can be expected to result in changes in quality of life, particularly in the context of war and conflict. The lack of significant changes in QoL scores in this study may indicate that it is necessary to add questions and possibly domains that more fully capture the Palestinian reality. The results of this study confirm this finding and indicate that supplementing the standard WHOQOL-Bref instrument with context-specific measures is an important undertaking in the occupied Palestinian territory, and potentially among other populations that have been exposed to intensified political violence.

Conclusions

The results of this study indicate that a political domain may provide further understanding of and possibly increase the sensitivity of the instrument to detect changes in the quality of life of the Palestinian population, and possibly other populations exposed to intensified political violence. This may be especially important in the occupied Palestinian territory where the extraordinary effects of war and occupation are often part of the daily lives of Palestinians.

Furthermore, given the Arab uprisings, it is apparent that the quality of life of populations depends in important ways on political freedoms and civic protections and that dissatisfaction with the quality of life in general and the lack of political freedoms in particular can lead to revolution. It thus is vital that future studies of the quality of life of populations—especially populations under dictatorships or other repressive political regimes—develop a political quality of life instrument.

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