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Imprints on the consciousness

The impact on Palestinian civilians of the Israeli Army invasion of West Bank towns

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Background: The dehumanizing aspects of conflict and war are increasingly recognized as serious health and human rights concerns. This paper examines the impact on civilians of the 29 March 2002 Israeli Army invasion and subsequent curfews lasting up to 45 consecutive days, of five West Bank towns. Methods: Using focus groups, a 10-item scale was devised to measure the effects of the invasion's impact on the social and health-related quality of life. The scale is an aggregate of three constructs measuring housing, financial, and health-related issues. A survey composed of demographic questions and the 10-item social/health scale was administered to a stratified random sample of inhabitants of the five towns. Results: the invasion caused extensive destruction, food and cash shortages, internal displacement of civilians, psychological distress, and serious interruptions of basic services, including crucial health services. Overall, Jenin experienced the most deleterious effects. Using the subscales, Jenin experienced the highest overall housing damage, Bethlehem the most financial difficulties, and Ramallah the most health-related hardships. Conclusions: civilians inevitably suffer during conflict and war from destruction of the community infrastructure and from personal stress due to disruption of services and the non-fulfilment of basic human needs. In contradistinction to standard damage assessments that focus on collective physical damage, this scale provides richer information on the needs of civilians in conflict-torn areas, and can assist aid workers in the efficient deployment of resources.

Keywords: access to services, human rights, living conditions, Palestinian civilians, war

Conflicts and war are increasingly being incorporated into the medical and public health discourse as central determinants of health, as their dehumanizing aspects are seen both as important human rights concerns and health concerns.[1–3] The effects of war on civilian health are varied and cumulative, especially in situations of chronic protracted conflict. War and conflict not only lead to increasing death, injury and disability, but also affect physical and mental health in a variety of cumulative ways. Factors precipitated by conflict such as displacement, below standard housing and hygiene, societal disintegration, violence against civilians, fear, the interruption of basic services such as electricity, water and sanitation, and the interruption or cessation of health services all lead to high levels of stress and seriously endanger civilian health.[4–7]

Palestine has experienced conflict for most of the last century and continues to do so into the twenty-first century with the recent invasion of Palestinian Authority Areas by the Israeli Army. This invasion is described as 'a race to the bottom in terms of respect for human rights and international humanitarian law'.[1] On 29 March 2002, the Israeli Army invaded and re-occupied five West Bank towns, placing the population under curfew for as much as 45 continuous days. The Israeli Army shelled, bombed, destroyed institutions and razed homes; shot, killed, and injured children, women and men; and arrested many, mostly men.[8] During this period, the civilian population in these towns inevitably suffered the consequences of this invasion not only due to the effects of physical destruction and damage to infrastructure and institutions, but also in social and humanitarian terms due to war-related morbidities and lack of access to health services.[9] In this paper, we present a social/health scale for measuring the effect of the invasion upon the social and health-related quality of life of civilians during this period of conflict. The scale is an aggregate of three constructs measuring housing, financial, and health-related issues. We use this scale and its subscales to compare the level of damage to civilian health and welfare within the afflicted towns.

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METHODS

This is a house-to-house survey that was conducted in May 2002, covering the five West Bank towns that were invaded by the Israeli Army during March/April of 2002 (153 households in Ramallah, 148 in Bethlehem, 154 in Nablus, 151 in Jenin and 155 in Tulkarm). The size of the population of these towns is small and ranges from 27,000 and up to 100,000 persons.[10–14] Data were collected using a two-stage cluster-sampling scheme. Each town was divided into five strata. A random set of clusters each composed of approximately 100 households was first chosen, and then using an interval of 10 a systematic sample of households was chosen from each cluster. Interviews were conducted with adult household members, with the sample of respondents almost equally divided between men and women. The expected maximum margin of error at the city level is

$$1.96 * DE \sqrt{p\,(1-p)/n}$$

where p is the proportion of a given attribute; DE is the design effect that is estimated at 1.1 for this study; and the value, 1.96, assures a confidence level of 95%. Assuming the most conservative value for p at 0.5, the margin of error for estimates of percentages for measured attributes is 8.8%.

Social/health scale

Development of the social/health scale involved two stages. First, several focus groups composed of either university students or families from different regions of the West Bank were conducted. Based on results from these focus groups, a questionnaire was developed and pilot tested. This questionnaire consisted of questions dealing with demographic data and the developed 10-item social/health scale. A principal components analysis of the 10-item social/health scale data demonstrated the presence of three well-differentiated constructs incorporated within the scale. These are: physical damage (questions 1 through 4); financial issues (questions 5 through 7); and health-related issues (questions 8 through 10) (*table 1*).

Seven of these variables were recorded in binary format (yes, no) and three were coded using three levels (all or most of the time, some of the time, and none). The binary variables were coded as 1 for 'yes' and 0 for 'no' and the trichotomous variables were coded as 1 for 'all or most of the time', 0.5 for 'some of the time' and 0 for 'none'. The social/health scale was then computed as the sum of the recoded values for these 10 questions. In the instances when answers to questions were missing (at most two questions), the social/health scale was computed as the appropriate proportion of the answered questions. The social/health scale was scaled on a measure of 0 to 10 with 0 denoting no effect and 10 denoting the most severe effect.

Statistical analyses

After weighting for population size, frequency and percentage distributions were used to describe the data. Using the social/health scale as an outcome variable, a regression analysis controlling for the respondent's gender (male=0, female=1), type of family (nuclear=0, extended=1), and education (0=illiterate, 1=primary; 2=secondary, 3=college) was implemented to compare the severity of damage experienced by the five towns (with Bethlehem serving as the reference). A logistic regression of psychological distress (yes, no) controlling for other measured variables was implemented. Both these regression analyses used the appropriate weight due to differences in population size in these five towns. The means among the different towns were also compared using a regression of the social/health scale upon the location (city) without controlling for covariates.

The 10 items on this scale were deemed appropriate to the culture and context of the West Bank by the professional staff conducting the survey. The reliability of the severity index was assessed using Cronbach's[15] alpha. Using the respondents from the survey, Cronbach's coefficient alpha is 0.60. The validity of the index can be demonstrated by its agreement (*table 3*) with other published reports of damages to these towns with Jenin suffering the worst physical damage and Bethlehem the least.[16] Furthermore, the team of investigators who developed this scale experienced, first hand, the effects of the invasion.

RESULTS

Descriptive analyses

As *table 2* indicates, reports of the extent of damage and its impact vary by town. Electricity and water shortages were worst in Jenin at 96% and 92%, respectively. These high percentages are a reflection of the severity of attacks in Jenin, which caused extensive damage to civilian homes. Jenin households most acutely felt gunfire, shootings and explosions nearby with 91% reporting such experiences, followed by 88% for Ramallah, and 85% for the other towns. Destruction of infrastructure, institutions and businesses in the respondent's neighbourhood was highest for Tulkarm at 87% followed by Jenin, at 78%. This is probably related to physical damage and destruction taking place either on a wide scale but with less intensity, as in Tulkarm, or severely in concentrated areas, as in Jenin and Nablus. Job loss as a result of the invasion varied from a high of 29% in Bethlehem, perhaps due to the loss of tourism, which employs many, to a low of 23% for Ramallah, the *de facto* political and cultural centre of the West Bank. These differences, however, were not statistically significant. Other explanations for job loss offered by respondents included the collapse of the local economy, the destruction of the institutions in which they had

Table 1 The social/health scale and its subscale questions

Subscales	Questions	
Physical damage	1	Did you have disruptions to your electrical services most or all of the time?
	2	Did you have disruptions to your piped water services most or all of the time?
	3	Did you have gunfire, shootings and/or explosions?
	4	Did you have destruction to houses and buildings in your neighbourhood?
Financial issues	5	Did you lose your employment since the invasion?
	6	Did you have food shortages at home?
	7	Did you have cash shortages at home?
Health-related issues	8	Did you house displaced people in your home?
	9	Did you have access to medications?
	10	Did you or anyone in your home have psychological distress?

Table 2 Percentages for each of the 10 items of the social/health scale by town

Subscales	Questions		Bethlehem	Jenin	Nablus	Ramallah	Tulkarm
Physical damage	1	Electrical services disruption most or all of the time	14	96	47	20	44
	2	Piped water disruption most or all of the time	6	92	39	37	23
	3	Shootings and explosions nearby all or most of the time	85	91	85	88	85
	4	Destruction in the neighbourhood	31	78	67	52	87
Financial issues	5	Job loss	29	24	27	23	28
	6	Food shortages at home	54	64	37	43	50
	7	Cash shortages at home	65	34	33	54	39
Health-related issues	8	Housed displaced people at home	28	37	29	30	23
	9	Lost access to medication	34	34	22	49	34
	10	Respondent reports psychological distress at home	87	89	71	93	91

previously worked, or the continuation of strict siege conditions preventing them from reaching their work in other locales. Jenin appears to have suffered the worst food shortages (64%) at home during the invasion. Food shortages included important items such as baby milk, flour (a staple), vegetables and sugar. Eating less and rationing foods were frequently mentioned methods of coping, raising concern about the nutritional status of these civilians, especially that of young children. Cash shortages to buy food and basic items when the curfew was lifted every 3 days for two to three hour periods were felt most strongly by Bethlehem residents at 65%, followed by Ramallah at 54%. This may perhaps be due to the fact that other towns had advance warning, as the invasion first began in Ramallah and Bethlehem on 29 March, and continued to cover the other towns a few days later. Civilian displacement was worst in Jenin at 37% of households that report housing displaced family members or friends due to the destruction of a large number of homes by shelling, bombing and bulldozing. Ramallah households were most severely affected by medication shortages at 49%, which may also be due to the invasion beginning in Ramallah, offering advance warning to the other town households. Important medication shortages included those needed for chronic disease management and control, notably diabetes mellitus, hypertension and heart disease. Antibiotics to treat infections were also reported among the medications that were lacking. Some respondents reported that they dealt with the problem of loss of access to medications by 'stretching' their supply and reducing the dose to cover more days. This coping mechanism may have compromised the health of those needing the medications. A high level of psychological distress was noted for all towns, with 93% of Ramallah respondents reporting these problems at home, with sleeplessness, uncontrollable fear and shaking episodes, fatigue, depression, hopelessness, and enuresis and uncontrolled crying episodes among children included in the respondents' narratives. These results are probably related to the severity of onslaught combined with the ability to recognize psychological distress as important and to be divulged without shame even though the local culture is still reluctant to consider mental health problems as integral to health status.

The weighted mean of the social/health scale and its subscales were calculated for each of the five towns (*table 3*). The average social/health scale over all five towns is 5.47 indicating that, on average, respondents reported problems with more than five of the questions put to them. To facilitate comparisons between the five towns, Bethlehem was chosen as the reference. *Table 3* shows the results with Bethlehem having the smallest mean social/health scale at 4.79 and Jenin the highest at 6.60. All towns differ significantly from Bethlehem with the exception of Tulkarm, which is marginally different. Housing damage was least in Bethlehem, and all other four towns report significantly higher physical damage than Bethlehem. Bethlehem respondents reported the greatest financial difficulties followed by Ramallah, and Jenin, which did not significantly differ from Bethlehem. Both Nablus and Tulkarm reported significantly lower financial difficulties than Bethlehem. Health-related hardships were highest in Ramallah and were significantly higher than Bethlehem. Jenin and Tulkarm reported fewer health related hardships and were not significantly different from Bethlehem. Finally Nablus reported the least health-related issues, significantly less than Bethlehem.

Multivariate analyses

Two separate multivariate analyses were implemented. First, the social/health scale was compared for the five towns after controlling for education, family type and gender of the respondents. Using a weighted regression analysis demonstrates that the social/health scale is significantly higher for respondents with less education ($p<0.0001$), is significantly higher for respondents from extended families ($p<0.0002$), and not different for men or women. In comparing the cities after controlling for education and family type and with Bethlehem serving as the reference, Nablus does not have a significantly higher social/health scale ($p=0.3$) than Bethlehem, while Jenin ($p<0.0001$), Ramallah ($p<0.0001$) and Tulkarm ($p<0.0001$) have significantly higher scale values than Bethlehem.

A second analysis considered the responses to the psychological stress question as an outcome variable in a weighted logistic regression controlling for the other nine questionnaire responses and controlling for education, family type and gender of the respondents. Results demonstrated that psychological stress is significantly higher when there is greater destruction of property ($p=0.001$), greater food shortages ($p=0.03$), and greater shortage of medications ($p=0.03$).

DISCUSSION

The social/health scale and subscales presented in this study clearly indicate that the effects of war on the civilian population go beyond physical damage of infrastructure, injury, death, and disability and have negative impacts on the life and health of survivors. Loss of home, degradation of the quality of housing and displacement are known to predispose to serious risk to health.[4,17] Many respondents housed displaced persons during the period of invasion, and continue to do so as periodic 'rotating invasions' of towns are maintained apparently as a matter of routine Israeli Defence Force (IDF) policy. The case of the Jenin refugee camp is especially troubling where damage was intentionally focused on housing as indicated by the bulldozing of so many houses and the 800 families who were left homeless.[16] The inhabitants of Jenin Refugee Camp must have felt these tragic events more intensely because they were completely displaced at least once prior to this attack.

Interruption of household utilities such as electricity and water destroy the precious few remaining food supplies and degrade further the already damaged economy. Such interruptions also increase the burdens of managing households, especially those with children, the elderly and the disabled. These conditions

Table 3 The social/health scale and its three subscales: housing destruction, financial difficulties and health related hardships

	Total index		Subscales					
City	Severity (SD)	p*	Physical destruction (SD)	p*	Financial difficulties (SD)	p*	Health-related hardships (SD)	p*
Bethlehem	4.79 (1.49)	Ref	1.76 (0.76)	Ref	1.43 (0.89)	Ref	1.49 (0.70)	Ref
Jenin	6.60 (1.17)	<0.0001	3.64 (0.51)	<0.0001	1.20 (0.69)	0.2	1.60 (0.58)	0.3
Nablus	5.17 (3.08)	0.08	2.86 (1.44)	<0.0001	0.98 (1.42)	0.001	1.22 (1.29)	0.007
Ramallah	5.63 (1.78)	0.0005	2.55 (0.80)	<0.0001	1.31 (1.03)	0.5	1.73 (0.79)	0.03
Tulkarm	5.86 (1.32)	<0.0001	3.06 (0.85)	<0.0001	1.09 (0.85)	0.05	1.47 (0.62)	0.9

* *p* denotes the significance level for the test of the difference between the means of Bethlehem (which served as the reference) and the remaining other four towns.

make it difficult to achieve an acceptable level of sanitation at home, and can have serious adverse effects on civilian health.[18,19] Shortages of food and cash, either because of lack of access due to curfew or because of job loss, or both, inevitably pre-dispose already financially compromised households to nutritional problems and work in cumulative ways to adversely affect health.

Lack of access to modern medical services, especially in relation to immunizations of mothers and children and delivery services, combined with shortages of medications, further exacerbate health problems. Indeed, in wars, health services are disrupted, disintegrate or are halted altogether, leading to serious risks to civilian health.[20–22] In the case of the towns included in this study, invasion and curfew conditions blocked access to health services, brought governmental health services to a near halt, interrupted immunization programmes, seriously compromised the cold chain due to questionable refrigeration quality in transporting vaccines, and temporarily collapsed the private medical sector.[23] Since the curfew was lifted, strict siege and periodic re-invasions and curfew conditions continue to either prohibit access or at the very least inhibit the adequate operation of health services, further endangering health status.

The large number of respondents reporting psychological distress, especially in relation to children, points to an urgent priority for further investigation. As was observed from our analyses, psychological distress is directly and independently related to the level of destruction and the interruptions in food and medical supplies. The stressors of war and conflict are known to negatively influence mental health, and can lead to somatization that can adversely influence physical health as well,[24–26] although the relation between psychological distress/exposure to traumatic experiences and outcomes is not clear.[27]

Physical destruction of civilian infrastructure is the most obvious effect of war. Other effects of war include the displacement of people, loss of livelihoods, and the destruction of health systems and basic services. These latter effects are most distressing as they lead to the spread of disease, malnutrition, and a general deterioration in social and health-related quality of civilian life. Indeed, it has been noted that perhaps one of the main effects of war is collective in nature, embodied in the experiences of populations living the destruction of their society, including their history, identity and values.[27] In the Palestinian case, this collective experience of societal destruction is especially relevant, where victimization for almost a century can only contribute further to intense feelings of desperation fuelled by what seems to be an endless agony.

In an attempt to assess the damages incurred as a result of the 29 March Israeli Army invasion of the many towns and villages of the West Bank, a consortium of international donors estimated the physical damage in the West Bank towns at USD 361 million.[16] Their report indicated that this figure does not include income losses and social and humanitarian costs. To only focus on the physical damage to buildings, roads and electrical and water networks misses the real impact of this invasion. In this study, we chose to emphasize the social and humanitarian elements that have significant impact on civilian health and life and future societal development. The social/health scale mean for all five towns of 5.47 demonstrates the extent of the human suffering within these localities. An interpretation of this mean value is that an average of 54.7% of respondents reported serious hardships due to the invasion and curfews. On such a scale, Jenin experienced the worst effects of the invasion followed by Tulkarm, Ramallah, Nablus and Bethlehem. Even though damage to the physical infrastructure is important, the social/health scale demonstrates the added dimension to this devastation, and serves to complement the international donor damage estimates. Our analysis of the relation of reported psychological stress to destruction of homes and shortages of food and medications clearly demonstrates this added dimension.

Because war and conflict produce tolls on populations that go beyond collective physical damage, donor policies and actions must be oriented to alleviate both the effects of destruction of property and the destructive effects of war upon the life and welfare of people. The consequences to households and individuals are immense and have the potential for lasting to succeeding generations. We propose that this social/health scale be used by international agencies as a complement to their usual assessment of physical damages. Early and adequate investigations of the social and health sequelae to Israeli invasion of Palestinian communities can provide efficient criteria for allocating aid and reconstruction resources. If such a stratagem is not used, then the risk will remain that appropriate relief, reconstruction and rehabilitation operations will not be achieved.

CONCLUSION

Palestinian circumstances are complex and protracted, so much so that many Palestinians have lived all their lives as refugees, or have been subjected to living conditions intertwined with chronic conflict and periods of acute violent conflict. The impact of these circumstances on their health and social well-being necessitates the adoption of an approach to assistance that goes beyond classical humanitarian relief. As others have observed, areas afflicted by complex emergencies also suffer increasing morbidity and mortality as the consequences of human rights abuses.[28] The Palestinian situation is not an exception. This study highlights the effects of just one episode of intensified conflict, the Israeli invasion of March 2002, on the health and welfare of Palestinian inhabitants of the five towns of this study. Even though recurrent relief activities are important, they do not provide a permanent solution to civilian suffering. A just and permanent solution to the human rights abuses Palestinian civilians continue to suffer is necessarily the only remedy leading to better health and an acceptable quality of life.

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