

Symptoms of reproductive tract infections and mental distress among women in low-income urban neighborhoods of Beirut, Lebanon

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ABSTRACT

Background: To examine the association between symptoms of reproductive tract infections (RTIs) and mental distress among women residing in three low-income urban neighborhoods in Greater Beirut. **Methods:** A cross-sectional survey of currently married women aged 15-49 years (n=1506) from the 2003 Urban Health Study. The dependent variables were: complaining of vaginal discharge, pelvic pain, and pain during intercourse. The main independent variable was mental distress measured using the General Health Questionnaire-12. Other variables included decision making power, 'comfort' with husband, age, education, income, household wealth, employment, community of residence, displacement by war, presence of chronic disease, reported reproductive health problem, membership in any group, receipt of favor last month, and smoking. Analysis was conducted using logistic regression models on the complaint of any symptom of RTIs and on individual complaints. **Results:** Forty two percent of the interviewed women reported at least one symptom of RTIs. Vaginal discharge was the most commonly reported symptom with 33% of currently married women complaining from it. Mental distress was significantly associated with any reported RTI symptom (OR=1.41; CI=1.09-1.83), pelvic pain (OR=2.38; CI=1.71-3.30), vaginal discharge (OR=1.35; CI=1.03-1.77), and pain during intercourse (OR=2.37; CI=1.66-3.40) after adjusting for demographic, socioeconomic and health risk factors. **Conclusions:** A significant association between mental distress and reported RTI symptoms was established by this study. A new approach to gynecological morbidity is needed, one that integrates biomedical and psychosocial factors into a unified framework.

Keywords: Women's health, RTIs, vaginal discharge, mental Health, Lebanon, Middle East

BACKGROUND

During the last decade, gynecological problems facing poor women in developing countries, and attempts to understand their determinants, have gained increased attention. Reproductive tract infections (RTIs) are highly prevalent among disadvantaged women living in rural areas or urban slums.¹⁻⁴ In the Arab world, more than half of women in reproductive ages are estimated to suffer from some form of reproductive problems, as per community-based surveys conducted in the region.^{2,5-6} A number of studies have indicated that women often report RTIs' symptoms, with vaginal discharge being the most common one.^{1,7-10} Indeed, the complaint of RTIs symptoms is a prevalent condition, and it is difficult for physicians to manage when no medical explanation can be found.¹¹⁻¹⁵ From a woman's perspective, subjective burden of self-perceived illness, feelings of pain and discomfort are as important as the burden of disease stemming from biomedical conditions. Self-perception of illness is also an important determinant of health seeking behavior, which in these households also increase the amounts of spending on health care.¹⁶⁻¹⁷

Concurrently, there is increasing evidence indicating the poor correspondence of reported symptoms of reproductive health problems with medically diagnosed diseases.^{1-2,9,18-21} A community-based study carried out in the village of Giza in Egypt, based on women's self-reporting of symptoms coupled with clinical and laboratory examinations, indicated that 77% of interviewed women reported symptoms of discharge while the medical examination confirmed that only 51% of women have RTIs.¹ Similar findings were reported from India¹¹ and Lebanon.²¹

Alternative plausible explanations to the medically unexplained reported RTI symptoms have recently emerged. Several studies in the developing world confirmed the contribution of disabling mental ill-health²²⁻²⁶, including anxiety²⁵ and depression^{8,25}, to medically unexplained reported RTI symptoms⁷ such as pelvic pain²³⁻²⁶ and abnormal vaginal discharge.¹¹ Qualitative studies in India indicated that women typically associate complaints

of discharge with mental stress and related symptoms such as tiredness.⁸ Recent population-based studies from South Asia have shown significant associations between complaints of vaginal discharge and psychosocial distress^{8,11} in addition to psychosomatic symptoms¹¹ such as ‘dizziness, backache, and weakness’.²⁷ However, vaginal discharges are not necessarily related to morbidity;²⁷ they may be rather indicative of a culturally-shaped disease.^{14,28} The loss of bodily fluids might provoke much anxiety and distress in certain cultures.¹⁴ More recently, Jejeebhoy²⁹ argued that self-perceived symptoms are partly due to fundamental psychosocial or behavioral problems facing women in poor environments. Specifically, vaginal discharge, much like mental distress, might be determined by the patriarchal context of married women. In a recent study³⁰, it was found that young, mentally distressed women, who experienced marital disharmony, have higher incidence of abnormal vaginal discharge.

This study examined the association between symptoms related to RTIs, especially vaginal discharge, and mental distress among women residing in three impoverished neighborhoods in Greater Beirut, the capital city of Lebanon. The study adjusted for a host of health, demographic, socio-economic, and behavioral covariates identified by previous studies as important risk factors for RTI symptoms. These include decision making power, reported marital satisfaction as measured by ‘comfort’ (*murtaha* in Arabic) with husband, reported reproductive health problems, chronic disease, smoking, age, education, income, employment, displacement, social capital and place of residence. It was hypothesized that mental distress is associated with symptoms of RTIs adjusting for all other relevant risk factors. To the best of our knowledge, this is the first study to examine predictors of reported symptoms of RTIs in the Middle East context.

METHODS

This research is part of the Reproductive Health Component of the Urban Health Study (UHS), conducted in 2002-2003 in three impoverished neighborhoods on the outskirts of

Beirut by an interdisciplinary team of researchers based at the Centre for Research on Population and Health, American University of Beirut, Lebanon. The UHS sought to provide policy-relevant analysis of population health within a setting of rapid urbanization and endemic poverty.

Setting

The study neighborhoods (Burj Barajneh Camp, Hay el Sellom, and Nabaa) share similar characteristics of dense population, impoverishment, rural-urban mobility, including war-displaced populations and lack of basic infrastructure. They differ with regard to their ethnic and religious composition, as well as their social structure and organization.

Burj Barajneh Camp was established in 1949 and is currently the largest Palestinian refugee camp in Beirut and the second largest in the country. The Lebanese government still considers the camp a temporary residence and, hence, does not allow expansion in its geographic size despite the high population growth of its estimated 15,484 residents.³¹ Health and social services are provided mainly by United Nations Relief and Works Agency (UNRWA) for Palestine refugees. Hay el Sellom is located southeast of Beirut and populated mainly with Shi'ite Muslims who were displaced following the 1982 Israeli invasion of South Lebanon. Reproductive health services are partially subsidized by the governmental Development Centre and two active NGOs. The third neighborhood, Nabaa, is located in the eastern suburbs of Beirut that emerged as a result of the internal migration of Christian and Shiite Lebanese people seeking better employment opportunities. Numerous NGOs provide subsidized health services in addition to a government-sponsored Development Center.

Sample and data collection

The sample was chosen using a probability proportional to size stratified sampling design. Data collection was carried out in two phases. In Phase I, a household survey was conducted

from May to July 2002. Information pertaining to households such as income was collected from 2797 households (93.0% response rate). In Phase II, a survey of all ever married women aged 15-59 found in the household sample was conducted between December 2002 and April 2003.

The data were collected by face-to-face interviews, conducted in Lebanese colloquial Arabic by female interviewers recruited from the study neighborhoods. Prior the interviews, conducted in private, a written consent form was obtained from all participants. A total of 1,869 ever-married women completed the questionnaire (91.1%). In this study, data on married women of reproductive age, 15-49 years (n=1506), were selected for the analysis. The UHS received ethical approval from the Institutional Research Board at the American University of Beirut.

Measures

In this paper we focus on potentially medically unexplained symptoms of RTIs. Three dependent variables of symptoms of RTIs were used: pelvic pain, vaginal discharge, and problems during intercourse. All variables were measured by one direct question: “Are you complaining of (this specific symptom)?”, with dichotomous answers for each symptom, Yes (=1) and No (=0).

Our main independent variable was mental distress, assessed using the General Health Questionnaire-12 (GHQ-12) screening instrument. The items were dichotomized (1=yes, 0=no) and summed yielding a score ranging from 0 to 12. A conservative score of 4 or greater was used to indicate mental distress.³² We adjusted for a number of variables identified by previous literature as risk factors for reporting symptoms of RTIs. Three health-related variables were used as controls: reporting of reproductive health problems in the past two months, suffering from chronic health problems (yes/no), and current smoking status (yes/no). Demographic and socioeconomic-status control variables included age (15-29, 30-

44, 45-59), completed education (less than elementary, elementary, intermediate, and secondary or more), yearly household income in 1000 Lebanese Liras (\$1=1500 Lebanese Lira; quartiles) adjusted for household size, labor force participation (yes/no), ever-displaced by war (yes/no), and household wealth (quintiles). The wealth index was computed from the data using the technique of principal components for variables indexing the presence of durables in the household as well as housing conditions.³³ The resulting index was divided into quintiles with the first one being women belonging to households with the lowest standard of living.

In addition, two gender disadvantage variables were used: “Comfort” (*murtaha* in Arabic) with the husband (yes/no) to index marital satisfaction and women’s decision making power (low/high) to index empowerment. The variable, comfort with husband was measured by a direct question: “Are you comfortable (*murtaha*) with your husband?”, with Yes (=1) or No (=0) answer categories. Decision making was measured by five items in the questionnaire, asking women about who has the final say in purchasing household furniture such as chairs and tables, shopping, taking children to the physician, choosing a place for recreation, and choosing a television program. For each of these items, the answer categories consisted of (1) husband only, (2) both husband and wife, and (3) wife only. A simple index of women’s decision making was calculated by summing the items, yielding a measure which ranged from 5 (low) to 15 (high). Since the index was highly skewed, it was decided to dichotomize it into low (5-10) and high (11-15) for the regression analysis. Two conventional indicators were used to measure social capital: membership in a club or association (yes/no) and whether the woman reported receiving help from others over the past month (yes/no). Finally, the model included a control for the particular social context, indexed by community of residence.

Analysis

Univariate descriptive statistics for the variables included in our sample were first calculated, followed by bivariate analysis using χ^2 tests to examine the association of each predictor variable with any of the complaints of pelvic pain, vaginal discharge, and problems during intercourse, and with each one outcome separately. Adjusted odds ratios and associated 95% confidence levels were calculated from binomial logistic regressions models. The final regression models adjusted for all relevant risk factors reported in the bivariate analysis. In other words, the three regression models used the same set of variables regardless of their reported bivariate associations with the outcomes. SPSS 13.0 was used in the analysis, with a minimum level of statistical significance set at 0.05.³⁴

RESULTS

Overall, 42% of ever-married women in the study reported at least one symptom of gynecological morbidity and 27% reported having two or more gynecological symptoms (data not shown). For reported symptoms of RTIs, vaginal discharge was the most commonly reported one (33%), followed by pelvic pain (15.2%), and problems during intercourse (12.4%).

The characteristics of the study sample are described in Table 1. Over a third of women (37.2%) were distressed. The majority of women were between 30-44 years old (60.3%), and more of them resided in Burj Barajneh Camp (42.7%) than the other two neighborhoods. Nearly 21% did not have any education while 47% finished elementary education. About a fourth of women reported having a reproductive health problem (24%) or a chronic disease (26%). Current smoking was relatively high from a regional perspective at 37%. A large proportion of women had low decision making power (39%), but the vast majority (83%) of them were 'comfortable' with their husbands. As elsewhere in the region, labor force participation among women was low at 19%. Social capital was relatively low,

and only 6% of women were members of any social group or association, and 24% reported receiving favors during the month before the survey. A large proportion of women (45%) in the study were displaced by during the civil war.

(Table 1 about here)

About 40% of women who were mentally distressed were more likely to report any RTI symptom compared to those non-mentally distressed (30%). Also, 59.8% of women reporting a reproductive health problem, 40.5% between the ages of 15-29, 36.5% with elementary education, 39.7% at the low (bottom quartile) income, 34.1% of those not members of any social group, 38% with low decision making power, and 43.3% of those resided in Hay el Sellom neighborhood were more likely to report any RTI symptom than other women. The unadjusted associations between reporting any RTI symptom and mental distress, reporting a reproductive health problem, low decision making power, age, having low wealth, and the place of residence were statistically significant. Similar significant associations were reported with pelvic pain, vaginal discharge and 'problems during intercourse', except that age was not associated with pelvic pain, and income as well as decision-making were not associated with pelvic pain and 'problems during intercourse'.

After adjusting for relevant variables, mental distress remained significantly associated with reporting any RTI symptom (Table 2). Women suffering from mental distress were at a greater risk (OR=1.41; CI= 1.09-1.83) of reporting any RTI symptoms than non-distressed women. Of the two gender disadvantage variables, decision making power (OR=1.28; CI=1.00-1.65) increased the odds of reporting any RTI symptom. Also, younger women aged 15-29 (OR= 2.23; CI= 1.34-3.89) and those aged 30-34 (OR=1.85; CI=1.13-3.02) were more likely to report at least one RTI symptom compared to older women. Reporting a reproductive health problem (OR=4.33; CI=3.31-5.67) increased the odds of reporting any RTI symptoms. Of the socioeconomic factors, only those with second poorest wealth (OR=1.57; CI=1.05-2.34) significantly increased the odds of reporting any RTI

symptom. Finally, Muslim residents of Hey el Sollom (OR=2.06; CI=1.45-2.92) and Burj Barajneh camp (OR=1.55; CI=1.11-2.17) were more likely to report RTI symptoms compared to those in Nabaa. Other socioeconomic variables, social capital variables, having a chronic disease, smoking and marital satisfaction were not significantly associated with the complaint of any RTI in our regression model (Table 2).

(Table 2 about here)

Table 2 also shows three logistic regression models for pelvic pain, vaginal discharge, and problems during intercourse. The results indicated that distress and reporting a reproductive health problem were significantly associated with all three RTI symptoms. Distressed women were most likely to report pelvic pain (OR= 2.38; CI=1.71-3.30), problems during intercourse (OR= 2.37; CI=1.66-3.40), followed by vaginal discharge (OR=1.35; CI=1.03-1.77). Also, women who reported a reproductive health problem were most likely to report vaginal discharge (OR= 4.52; CI= 3.44-5.93). As for age, youngest women were only significantly associated with reporting vaginal discharge (OR= 2.31; CI= 1.32-4.04) and problems during intercourse (OR=2.85; CI=1.27-6.42). Finally, low wealth was associated with pain during intercourse and community of residence was associated with vaginal discharge.

DISCUSSION

Almost a third of women in our sample complained of vaginal discharge and a third were found to be distressed. Women who reported a reproductive health problem were most likely to report vaginal discharge. Mental distress, age, reporting a reproductive health problem and community of residence remained significantly associated with the complaint of RTIs even after adjusting for education, income, wealth, displacement, labor force participation, social capital, gender disadvantage, reported chronic diseases, and smoking. Further analysis showed that distressed women were more likely to report pelvic pain, followed by problems

during intercourse and vaginal discharge, than non-distressed women. Age was found to be only significantly associated with vaginal discharge and problems during intercourse, where specifically younger women reported these symptoms than older women.

The strong associations between mental distress and reported RTI symptoms established in this study conform to findings from previous studies indicating that symptoms of RTIs, especially abnormal vaginal discharge, are significantly associated with mental distress.^{7-8,11,14, 27, 30} The effect of age on reported symptom of RTIs after adjusting for demographic, health and socioeconomic variables, identified in this study, is similar to findings in other studies. Miranda et al found that young women (<45 years), sampled from public-sector gynecologic clinics, have remarkably elevated rates of psychological disorders, particularly depression and anxiety disorders.³⁵ Patel et al found that younger age remained significantly associated with gynecological morbidity and co-occurring with mental distress.^{8,11}

Socio-economic factors have a significant influence on reproductive morbidity,³⁶ and have been reported as main causes of mental distress.⁸ In our study, socioeconomic factors did not remain significantly associated with reporting of RTI symptoms after adjusting for social capital, demographic, behavioral and selected health variables.

Some interpretations have pointed to underlying factors that are driving the observed association between mental distress and symptoms of RTIs. Living in a patriarchal context where gender roles are clearly set and differentiated and reproduction is highly valued, any symptom suggestive of reproductive malfunction or a sexually transmissible disease is detrimental to a woman's status²⁹, quality of life²², and reputation in society.^{20,37-38} Moreover, Patel et al and Jejeebhoy argued that marital conflicts and 'sexual violence' might be a plausible explanation behind the association between mental distress and symptoms of RTIs.²⁹⁻³⁰ In our study, decision making power was significantly associated only with reporting of any RTI symptom. On the other hand, being comfortable with the husband was

not significantly associated with the reporting of all RTI symptoms. However, ‘comfort’ with the husband may not be a good proxy of satisfaction with marital and sexual life and given the sensitivity of such types of questions, the reporting to a single close-ended question as the one asked in the survey may not reflect the real situation of marital relationships.

The direction of the association between reported symptoms of RTIs and mental distress is yet to be fully understood since most studies on the subject are observational in nature. Most of the available interpretations point to an influence of mental distress on the reporting of RTI symptoms, especially vaginal discharge that is medically unexplained.^{8,11,14,30} Depressed or anxious people might be more prone to provide pathological explanations to their normal physical experiences.⁸ Thus, the complaint of RTI symptoms might be an interpretation of the distress by means of the body.^{14,24,27,39} On the other hand, Rannestad et al reported that suffering from gynecological disorders does not necessarily affect the psychological well-being of women.²² These rival explanations remain valid and could not be examined with available evidence. Our study being observational with a cross-sectional design could only confirm associations, but not the direction of identified associations. This is one limitation of this study.

Our study has other limitations. First, we merely adjusted for self-reporting of reproductive health problems, including RTIs, in the regression to indicate medically unexplained symptoms. Verifying women's self-reporting of RTI symptoms by a medical examination or clinical and laboratory tests might have added rigor to the study by verifying the medically unexplained RTI symptoms before examining their associations with mental distress. In other words, our findings may suffer from bias resulting from our inability to rule out infections by lab testing or medical diagnoses. Second, the GHQ might not be the best instrument to evaluate mental distress, though it is a quick and simple questionnaire for community-based surveys and can be easily administered by lay interviewers. Yet, our findings could overestimate the extent of mental distress using a screening instrument such as

GHQ. In future studies, diagnostic instruments of mental distress should be used instead of screening ones. Third, the results cannot be generalized to all women since the study took place in three underprivileged urban communities in greater Beirut area with particular socioeconomic and demographic characteristics. Yet, they may be primarily significant to women living in similar urban contexts in the Middle East and beyond. Fourth, our study included only two measures of gender disadvantage. Previous studies documented a relationship between intimate partner violence on the one hand and infections⁴⁰⁻⁴² as well RTIs-related symptoms^{30,43}, but we lacked the requisite data to adjust for this risk factor.

Finally, the growing literature suggesting alternatives to a purely biomedical approach to gynecological morbidity demands new thinking that integrates biomedical and psychosocial factors into a unified framework. Studies in cross-cultural psychiatry may help to clarify the associations between emotional distress and unexplained RTI symptoms.²⁷ The adoption of a gender perspective in the research about gynecologic morbidity can be very useful in contextualizing the complaints of women and in proposing suitable recommendations to address these complaints. Cohort studies investigating the causal links between mental distress and RTIs and STIs in the context of India have recently been undertaken.⁴⁰⁻⁴¹ More research, using experimental or longitudinal designs, should be carried out to investigate the direction of the association between mental distress and RTI symptoms, especially in the Middle East context. Work is currently under way to evaluate the effectiveness of a community-based mental health intervention trial designed to reduce the reporting of medically unexplained vaginal discharge, the most prevalent symptom of RTIs in low-income women. This intervention study is being undertaken in Hey el Sollom, one of the communities included in this study and the one with the highest prevalence of RTI symptoms, especially vaginal discharge.

In conclusion, this study reported a high burden of both mental distress and complaints of RTI symptoms among low-income, married women living in greater Beirut.

Furthermore, the study established significant associations between mental distress and reported RTI symptoms among women, adjusting for self-reported infections, particularly RTIs, and a host of relevant demographic, socioeconomic and health factors. Further research is needed to assess the causal links between mental distress and RTI symptoms, and to understand the underlying factors behind the observed associations reported here.

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Table 1. Sample characteristics and bivariate associations of RTI symptoms with mental distress and selected demographic and socio-economic variables (%)

Variable	N (%)	Any RTI symptom	Pelvic pain	Vaginal discharge	Pain during intercourse
Mental distress					
Yes	560 (37.2)	40.1**	22.4**	34.3*	19.0**
No	946 (62.8)	29.8	10.0	26.0	8.0
Health related variables					
<i>Reproductive health problem</i>					
Yes	364 (24.2)	59.8**	29.1**	55.0**	24.0**
No	1140 (75.8)	25.4	10.0	21.0	8.0
<i>Chronic disease</i>					
Yes	391 (26.0)	32.0	16.1	28.0	13.2
No	1111 (74.0)	34.3	14.1	30.0	12.0
<i>Smoking</i>					
Yes	551 (36.7)	34.5	16.0	29.4	13.0
No	949 (63.3)	33.3	14.0	29.0	11.3
Gender disadvantage					
<i>Decision making power</i>					
Low	549 (38.5)	37.6 *	14.8	32.6*	13.5
High	876 (61.5)	32.2	14.2	27.6	11.4
<i>Comfort with husband</i>					
Yes	1238 (82.9)	33.4	14.1	29.0	11.3
No	255 (17.1)	34.9	17.0	29.0	15.4
Social capital					
<i>Membership in any group</i>					
Yes	88 (5.9)	26.1	13.0	21.3	11.4
No	1418 (94.1)	34.1	15.0	30.0	12.0
<i>Receipt of favor last month</i>					
Yes	356 (23.7)	33.7	16.0	28.0	13.0
No	1145 (76.3)	33.8	14.1	30.0	12.0
Demographic and socio-economic variables					
<i>Age</i>					
15-29	454 (30.2)	40.5**	15.0	38.0**	15.3 *
30-44	908 (60.3)	32.0	15.0	27.0	11.2
45-49	143 (9.5)	21.7	12.0	19.0	7.0
<i>Education level</i>					
None	311 (20.8)	32.5	13.2	29.0	12.3
Elementary	701 (46.9)	36.5	15.2	32.1	14.0
Intermediate	299 (20.0)	33.3	16.0	26.2	10.4
Secondary or higher	185 (12.3)	27.0	13.5	24.3	8.0
<i>Income Quartile(1000 Lebanese Lira)</i>					
<3600	395 (26.3)	39.7	15.1	34.0*	14.0
3600-6000	367 (24.4)	32.9	18.1	32.4	15.0
6000-10200	392 (26.0)	33.4	13.1	28.0	10.0
>10200	350 (23.3)	27.9	12.4	23.2	10.0
<i>Wealth index</i>					
Poorest	236 (15.7)	39.8**	16.2 *	35.3**	13.6 *
Second	301 (20.0)	38.5	16.9	31.6	16.3
Middle	298 (19.8)	38.6	18.2	33.8	15.4
Fourth	337 (22.4)	29.4	11.7	26.9	8.8
Richest	333 (22.1)	24.9	10.8	20.5	7.3

Table 1. Continued.

<i>Labor force participation</i>					
In labor force	283 (18.8)	30.1	14.9	26.9	12.5
Not in labor force	1221 (82.2)	34.5	14.6	29.7	11.9
<i>Ever displaced by war</i>					
Yes	677 (45.1)	34.6	13.9	29.3	11.1
No	823 (54.9)	32.8	15.1	28.9	12.7
Context (neighborhood)					
Hay el Sellom	356 (23.6)	43.3**	18.0	37.0**	17.0 *
Burj Barajneh Camp	643 (42.7)	36.9	14.3	34.0	11.0
Nabaa	507 (33.7)	22.9	13.0	18.0	10.3
Total (%)	100.0	33.7	14.6	29.1	12.0
N	1506	507	218	436	177

* p<0.05; ** p<0.001

Table 2. Adjusted odds ratios for reporting RTI symptoms

Variable	Any RTI symptom	Pelvic pain	Vaginal discharge	Pain during intercourse
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Mental distress				
Yes	1.41 (1.09-1.83)	2.38 (1.71-3.30)	1.35 (1.03-1.77)	2.37 (1.66-3.40)
No	1:00	1.00	1.00	1.00
Health related variables				
<i>Reproductive health problem</i>				
Yes	4.33 (3.31-5.67)	3.48 (2.53-4.79)	4.52 (3.44-5.93)	3.59 (2.53-5.09)
No	1:00	1.00	1.00	1.00
<i>Chronic disease</i>				
Yes	0.80 (0.60-1.06)	1.03 (0.71-1.47)	0.81 (0.60-1.10)	1.13 (0.76-1.69)
No	1:00	1.00	1.00	1.00
<i>Smoking</i>				
Yes	1.06 (0.81-1.39)	0.97 (0.68-1.36)	1.07 (0.81-1.42)	1.02 (0.70-1.48)
No	1:00	1.00	1.00	1.00
Gender disadvantage				
<i>Decision making power</i>				
Low	1.28 (1.00-1.65)	1.09 (0.78-1.52)	1.29 (0.99-1.68)	1.26 (0.88-1.80)
High	1:00	1.00	1.00	1.00
<i>Comfort with husband</i>				
Yes	1.03 (0.74-1.44)	1.00 (0.66-1.51)	0.92 (0.65-1.30)	1.18 (0.76-1.84)
No	1:00	1.00	1.00	1.00
Social capital				
<i>Membership in any group</i>				
No	1.18 (0.67-2.06)	1.20 (0.56-2.55)	1.32 (0.72-2.42)	0.61 (0.29-1.28)
Yes	1:00	1.00	1.00	1.00
<i>Receipt of favor last month</i>				
No	0.98 (0.73-1.30)	0.88 (0.61-1.26)	1.03 (0.76-1.39)	0.84 (0.56-1.24)
Yes	1:00	1.00	1.00	1.00
Demographic and socio-economic factors				
<i>Age</i>				
15-29	2.23 (1.34-3.89)	1.25 (0.63-2.48)	2.31 (1.32-4.04)	2.85 (1.27-6.42)
30-44	1.85 (1.13-3.02)	1.37 (0.74-2.46)	1.62 (0.97-2.72)	1.93 (0.90-4.11)
45-49	1:00	1.00	1.00	1.00
<i>Education level</i>				
None	1.08 (0.67-1.72)	0.82 (0.44-1.52)	1.16 (0.71-1.90)	1.47 (0.72-3.01)
Elementary	1.35 (0.90-2.02)	0.96 (0.57-1.62)	1.35 (0.88-2.07)	1.50 (0.80-2.83)
Intermediate	1.16 (0.74-1.81)	1.09 (0.61-1.94)	1.05 (0.65-1.68)	1.19 (0.59-2.39)
Secondary or higher	1:00	1.00	1.00	1.00
<i>Income Quartile(in 1000 Lebanese Liras)</i>				
<3600	0.95 (0.63-1.44)	1.09 (0.63-1.88)	0.88 (0.57-1.35)	1.11 (0.62-1.99)
3600-6000	0.93 (0.63-1.36)	1.26 (0.77-2.07)	0.98 (0.65-1.46)	1.11 (0.65-1.90)
6000-10200	0.85 (0.59-1.22)	0.95 (0.59-1.54)	0.90 (0.61-1.31)	0.81 (0.48-1.37)
>10200	1:00	1.00	1.00	1.00
<i>Wealth index</i>				
Poorest	1.37 (0.88-2.12)	1.12 (0.63-2.00)	1.41 (0.89-2.23)	1.34 (0.70-2.54)
Second	1.57 (1.05-2.34)	1.29 (0.77-2.19)	1.39 (0.91-2.11)	1.92 (1.07-3.46)
Middle	1.37 (0.92-2.03)	1.33 (0.80-2.23)	1.38 (0.91-2.09)	1.59 (0.88-2.87)
Fourth	1.02 (0.70-1.50)	0.96 (0.57-1.61)	1.11 (0.74-1.66)	1.05 (0.58-1.92)
Richest	1:00	1.00	1.00	1.00

Table 2. Continued

<i>Labor force participation</i>				
Not in labor force	1.08 (0.78-1.50)	1.05 (0.69-1.59)	0.96 (0.68-1.35)	0.95 (0.61-1.50)
In labor force	1.00	1.00	1.00	1.00
<i>Ever displaced by war</i>				
Yes	1.01 (0.78-1.29)	0.81 (0.58-1.13)	0.90 (0.69-1.18)	0.82 (0.57-1.18)
No	1.00	1.00	1.00	1.00
Context (neighborhood)				
Hay el Sellom	2.06 (1.45-2.92)	1.25 (0.80-1.94)	2.16 (1.49-3.12)	1.23 (0.77-1.97)
Burj Barajneh Camp	1.55 (1.11-2.17)	0.88 (0.57-1.37)	2.04 (1.43-2.92)	0.63 (0.39-1.03)
Nabaa	1.00	1.00	1.00	1.00
