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ORIGINAL ARTICLE

# Posttraumatic Stress Disorder and Depression in Battered Women: The Mediating Role of Learned Helplessness

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**Abstract** Learned helplessness (LH) may mediate the link between violence exposure and mental disorders in battered women. This study evaluated the contribution of LH to Posttraumatic Stress Disorder (PTSD) and major depression (MDD) in women with prolonged exposure to partner violence in 101 residents of shelters for battered women in Israel. DSM-IV axis-I disorders were assessed by a structured clinical interview. Self-report questionnaires evaluated exposure to violence, symptoms of PTSD and depression, LH, history of child abuse, SES and the extent of male-dominance and prejudice against women in the participants prior socialization background. LH significantly mediated the effect of violence on PTSD and depression symptoms. Male-dominated background contributed to LH. Thus, LH may increase the risk of mental disorders in battered women and should be addressed in interventions designed to reduce the burden of mental illness in this population.

**Keywords** Learned helplessness · PTSD · Depression · Battered women

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Intimate partner violence is a severe problem that impinges upon 10–50% of women across cultures and societies (John et al. 2004; Maziak and Asfar 2003; Center for Health and Gender Equity 1999; Tuesca and Borda 2003).

Exposure to partner violence may leave prolonged psychological sequelae, often in the form of mental disorders (Campbell 2002; Golding 1999) that may perpetuate the distressing effect of violence beyond its actual occurrence (Mertin and Philip 2002). Posttraumatic Stress Disorder (PTSD) was found in 33–83% of battered women, and is the most frequent mental disorder in this population (Bean and Moller 2002; Kubany et al. 1996; Saunders 1994; Perrin et al. 1997; Vitanza et al. 1995; Walker 1996; Watson et al. 1997). Major depression (MDD) is another prevalent outcome of domestic violence, which often co-occurs with PTSD (Bean and Moller 2002; Cascardi et al. 1999; Kessler et al. 1995; Kubany et al. 1996; Shalev et al. 1998; Stein and Kennedy 2001; Watson et al. 1997; West et al. 1990).

Violence severity is a known predictor of PTSD (Houskamp and Foy 1991) and PTSD symptoms among battered women (Astin et al. 1995; Kemp et al. 1991; Silva et al. 1997). However, other factors may contribute to the link between violence and PTSD. Woods and Isenberg (2001) found that different adaptation modes employed by battered women (related to measures of self-concept, interdependence and physiology) affect the relationship between abuse severity and PTSD.

Another known risk factor for PTSD in battered women is the existence of a previous history of physical and/or sexual abuse (Astin et al. 1995; Kemp et al. 1995; Ullman and Brecklin 2002). Additionally, some researchers found that low socioeconomic status predicted both violence severity and subsequent depression (Kessler et al. 2001; Tomes et al. 1990). Finally, cultural and educational influ-

ences which sanction male supremacy and female inferiority increase both the likelihood of partner abuse (Haj-Yahia 2000; Jewkes et al. 2002; Koenig et al. 2003) and the likelihood of battered women to adopt passive and submissive self-perceptions (Cheung and Kwok 1996). Furthermore, Yoshihama (2002) compared the types of coping strategies employed by battered women of Japanese descent that were born in Japan and in the USA, and found that Japan-born respondents were significantly less likely to use "active" strategies and perceived them to be less effective than did U.S.-born respondents.

Learned helplessness (LH) is a psychological trait, which, theoretically, results from repeated exposure to uncontrollable and aversive events (Seligman 1975). LH involves a substantial decrease in associating action with positive outcome and leads to a marked reduction in the range of responses to external demands (Miller 1988). In battered women, LH contributes to submissiveness and reluctance to leave an abusive relationship (Aguilar and Nightingale 1994; Ball and Wyman 1977–78; Walker 1996). LH may also modulate the relationship between violence and mental disorders, particularly PTSD and depression, possibly through changes in perceptions and beliefs (Burns and Seligman 1991; Duffy and Malloy 1994; Foa et al. 1992; Miller and Seligman 1975; Telner and Singhal 1984). PTSD symptoms in battered women are associated with cognitions related to LH, such as expectation of recurrent violence, internal attribution style (Dutton et al. 1994) and external locus of control (Noon 1995). Attributions that are typical of helplessness correlate with dysphoria in battered women (Clements and Sawhney 2000). These studies imply that LH is a common and predictable response of battered women to their situation. It is unclear, however, whether LH in battered women is due to current abuse or whether it has roots in their life history. Either way, if LH mediates the link between abuse and the resulting mental disorders then its occurrence and eventual prevention deserve special attention.

The relationship between violence exposure, LH, PTSD and MDD has not been systematically investigated. This study assessed the contribution of LH to PTSD and MDD in severely battered women, in an attempt to further understand risk factors that underlie the development of debilitating mental disorders in this population. According to the proposed model, high levels of LH would increase the likelihood of PTSD and depression in battered women, over and above the contribution of violence severity to these mental outcomes. We hypothesized that LH would mediate the relationship between violence severity and PTSD and depression symptom severity. We also hypothesized that violence severity would be positively correlated with LH, PTSD and depression symptom severity. Finally, it was hypothesized that the investigated background variables (child abuse, socioeconomic status and male-dominated background) would be significantly correlated with LH, and would thereby contribute to PTSD and depression symptom severity.

## Materials and Methods

Based on the main research hypotheses, this study was designed to evaluate the contribution of learned helplessness to the relationship between violence severity and duration, and PTSD and MDD diagnoses and symptom severity in a group of battered women. In order to test the secondary hypotheses, we compared PTSD-positive and non-PTSD groups and examined the contribution of three background covariates (child abuse, socioeconomic status and male-dominated background) to LH, PTSD and depression. Finally, we examined the bivariate associations between all of the above variables.

## Participants

Participants were recruited over a period of 18 months in eight out of Israel's 11 shelters for battered women. All Hebrew-speaking residents were considered for the study. Of the 140 women who were asked to participate, 102 agreed and all of them but one completed their participation.

The majority of the women in the sample (60%) were born in Israel, 23% were born in the former Soviet Union, 5% in Arab countries, 4% in Europe, 4% in North America, 2% in South America and 2% in Ethiopia. Two-thirds of the participants (67%) were married, 13% were single, and 20% were divorced. Eighty percent of the participants were Jewish, 6% Christians, 6% Muslims and 8% unaffiliated. Ninety percent of the participants were employed. More than half of the participants (59%) reported lower than average family income.

Participants' mean age was 31.6±7.4 (range 19–50 years). Participants' average number of children was 2.39±1.7. The average number of years in school was 11.6±2.0. The mean length of participant's last relationship was 9.7±7.6 years (range 0.8–34 years), and the mean length of the abuse within the relationship was 8.0±7.9 years (range 0.8–34 years). On average, participants were separated from their abusers for 6.6±9.8 months before the interviews (range 1 week–6 years) and had been in the shelter for 3.4±3.7 months (range 1 week–16 months).

All participants were involved in an abusive heterosexual relationship, and 90% were exposed to severe forms of physical and/or sexual violence (see Table 1). Ninety-seven percent reported physical abuse, sexual abuse, or both (in their recent relationship) and only 3% reported solely verbal abuse and threats. In addition, 47% were exposed to violence

**Table 1** Abuse type and severity characteristics of the sample ($N$=101)

| Abuse type characteristics | Percent (%) | Abuse severity characteristics | Percent (%) |
|---|---|---|---|
| Types of abuse in current relationship: | | Number of battering incidents: | |
| Cursing | 98 | None | 9 |
| Severe threats | 87 | 1 time | 6 |
| Slapping/pushing | 79 | 2–4 times | 11 |
| Punching/hitting | 66 | 5–10 times | 11 |
| Rape/forced sex | 48 | More than 10 times | 63 |
| Inflicting fractures/open wounds | 34 | | |
| Injuries leading to loss of consciousness/hospitalization | 15 | Duration of battering time[a]: | |
| | | None | 16 |
| | | 6 months or less | 8 |
| Violence history prior to current relationship: | | 7 months–2 years | 12 |
| Child abuse | 27 | 2–5 years | 22 |
| Completed rape | 20 | More than 5 years | 43 |
| Attempted rape | 16 | | |
| Molestation | 20 | Number of rape incidents: | |
| Battering | 5 | None | 44 |
| Threats | 5 | 1 time | 13 |
| | | 2–4 times | 12 |
| | | 5–10 times | 8 |
| | | More than 10 times | 23 |
| | | Duration of rape/forced sex incidents[a]: | |
| | | None | 59 |
| | | 6 months or less | 8 |
| | | 7 months to 2 years | 8 |
| | | 2–5 years | 9 |
| | | More than 5 years | 16 |

[a] Discrepancies between number of incidents and duration of abuse variables are due to missing values.

prior to the current abusive relationship (e.g. a history of child abuse, physical or sexual assaults by others).

A chronic medical condition (including chronic pain) was reported by 24.8% of the participants and 21.8% reported current medication treatment. Twelve percent of the participants had received psychiatric medication (5% reported current psychiatric medication treatment) and 29% had been in psychotherapy.

## Measures

The Structured Clinical Interview for DSM-IV (SCID-P; First et al. 1995) was used to determine the presence of all lifetime and current Axis I diagnoses. The Hebrew translation used in this study was previously validated and used in large scale studies in Israel (Shalev et al. 1998).

The Modified PTSD Scale-Self Report, which has sound psychometric properties (MSSR-SR; Falsetti et al. 1993), evaluated the frequency and severity of each of 17 PTSD symptoms during the 2 weeks prior to the evaluation session. The total combined frequency and severity score for each participant was used as a continuous measure of current PTSD symptom severity. The Hebrew translation of the questions was taken from the Hebrew version of the PSSR-SR (Foa et al. 1993) which differs from the MSSR-SR only in the required responses, and was previously used in many studies in Israel (e.g., Shalev et al. 1998). Cronbach alpha for this scale was 0.94 in the current study group.

The Beck Depression Inventory (BDI) was used to evaluate the severity of depressive symptoms. This 21-item self-report instrument is widely used and has well-established reliability and validity (Beck et al. 1988). The Hebrew translation used in this study was previously validated and used in many studies in Israel (e.g., Shalev et al. 1998).

The degree of self-perceived learned helplessness was measured with the Learned Helplessness Questionnaire (LHQ), a self-report, 20-item Hebrew questionnaire developed by the first author. The LHQ measures different psychological components of learned helplessness (perceptions of degree of control over problems, beliefs about self-efficacy, well-being and success as compared with others, deduction from past experiences to future expectations).

Prior to using it in this study, the questionnaire was administered to 30 bilingual volunteers who also completed the Learned Helplessness Scale (LHS; Quinless and Nelson

1988; an English instrument that was not authorized for Hebrew translation by the authors) and the Beck Hopelessness Scale (HS, Beck et al. 1974) which measures hopelessness attitudes and beliefs. The LHQ was significantly correlated with LHS ($r$=0.70) and with HS ($r$=0.50). Additionally, the LHQ was administered to 81 women attending self-defense classes and 81 female nursing students. The LHQ's internal consistency was found to be high across samples: Cronbach alpha was 0.88 in the current study group, 0.90 in the bilingual group, 0.87 in the self-defense class and 0.87 in the nursing student's group.

### Assessment of Violence Exposure

The Trauma History Questionnaire (THQ; Green 1996) evaluated spousal physical violence, sexual abuse, threats, and the amount of lifetime exposure to other types of traumatic events including child abuse, crime, war, and loss of loved ones. The THQ categorizes the severity (number of occurrences and extent of injury) and duration period of each type of violence exposure. The Hebrew translation used in this study was previously used in large scale studies in Israel (Shalev et al. 1998).

Additional details about the specific types of abuse encountered were obtained from the background questionnaire and the final quantification of violence severity was based on the information from both questionnaires. The final score was derived from weighted scores reflecting the frequency and relative severity of sexual, physical and verbal violence subtypes (e.g., bleeding wounds were assigned more weight than bruises, completed rape was assigned more weight than attempted rape, punching was assigned more weight than pushing, death threats were assigned more weight than beating threats). The weighted scores were then combined and standardized to yield the subtotal severity scores of sexual abuse, physical abuse and verbal abuse/threats. Finally, each participant's total violence severity score was calculated by adding the standardized scores of the three violence subtypes. Duration scores for each violence subtype and the total violence duration score were based on the period of each violence subtype as reported in the THQ. The correlations between violence severity and violence duration scores were consistently high and statistically significant ($0.50<r<0.90$). Consequently, only the violence severity scores were used in most of the analyses.

### Background Factors

Male-dominated background was assessed by statements formulated to evaluate whether the participant was consistently exposed to prejudice against women in her cultural and family rearing environment. The following six statements that address potentially harmful aspects of male-dominated cultural attitudes, described in previous domestic violence studies (e.g. Cheung and Kwok 1996; Dion and Giordano 1990; Haj-Yahia 2000; Jewkes et al. 2002; Koenig et al. 2003; Yoshihama 2002), were selected to measure the construct:

(1) I was taught that women must always obey men; (2) I grew up in an environment where men usually dominated women; (3) I was educated to believe that the man's role is to initiate and make decisions and the woman's role is to follow; (4) In the cultural tradition where I grew up, there was a common belief that women are less important than men; (5) In the past, I was taught that a woman must never stand up to a man; (6) In my childhood culture women were traditionally passive and submissive.

Participants responded by indicating "yes" or "no" next to each statement. The statements were found to be internally consistent in the research sample (Cronbach alpha=0.91).

Socioeconomic status (SES) was evaluated using the Hollingshead two-item index of social status (Hollingshead 1957).

### Procedure

Each participant signed a written informed consent after obtaining a complete description of the study, and received 200 NIS (about $45) for her participation. Diagnostic interviews with all participants were conducted individually in the shelters by the first author who is a trained bilingual psychologist with ample diagnostic experience. In addition, each participant independently completed a series of self-report questionnaires, and later reviewed them with the interviewer for additional clarifications as needed. Hebrew speaking participants received the Hebrew version of the written instruments. Russian speaking participants received the Russian translation of the instruments, which was done by a proficient bilingual translator and verified with a back-translation by another independent bilingual translator. English speaking subjects were administered the original English instruments. Interviews were conducted in Hebrew, with a few exceptions of women who preferred to be interviewed in English or receive assistance from a Russian-Hebrew bilingual translator.

### Analyses

Battered women with PTSD and those without PTSD were compared, using independent samples $t$-tests with continuous measures. Bivariate Pearson's correlation matrix was computed to describe the association between the major study variables. A path analysis model, comprised of a series of multiple linear regressions was used to test the study's main hypothesis. Hierarchical logistic regressions tested the contribution of the investigated variables to PTSD and MDD status. Hotelling's $t$-test for "correlated

correlations" within a population was used to test the difference between certain pairs of correlations involving LH, PTSD and depression, as an additional means of testing the mediating role of LH. All statistical tests were one-tailed, in accordance with the directional research hypotheses.

## Results

Table 1 presents the frequencies of the various types of abuse, abuse severity and duration. DSM-IV current Axis I disorders found in the sample (at rates higher than 5%) were as follows: 65% PTSD, 40% MDD, 17% Dysthymic Disorder, 14% Specific Phobia, 14% Pain Disorder, 11% Body Dysmorphic Disorder, 10% OCD, 7% Social Phobia, and 7% Binge-Eating Disorder.

Eighty percent of the participants diagnosed with current PTSD had comorbid Axis I disorders (of those, 35% had MDD; 13% Pain Disorder; 12% Specific Phobia and 10% Body Dysmorphic Disorder). As in other studies of trauma survivors in Israel (e.g., Bleich et al. 2003) substance abuse in this sample was infrequent (7% lifetime, 1% current).

### Group Comparisons

Chi-square group comparisons revealed no significant differences between PTSD-positive participants and non-PTSD participants in demographic variables such as language, age, country of birth and religion. *T*-tests which compared the continuous measures revealed no significant differences between the two groups on length of time in the shelter, SES, and physical violence severity.

The PTSD group had significantly higher scores on the following measures (Table 2): Depression symptom severity, LH, total, sexual and verbal violence severity, and violence duration. In addition, the PTSD group had significantly lower education and scored significantly higher on measures of male-dominated background, child abuse history, abuse-related stress, total trauma-related stress, total number of life traumas, number of ER visits, and amount of cigarette smoking.

No significant differences in any of the research variables were found between groups of participants who received the instruments in Hebrew, English or Russian, and variables such as ethnicity, birth country and mother tongue did not have a significant effect on any of the research variables.

### Correlations Between Study Variables

The correlations between the main research variables are displayed in Table 3. PTSD symptoms, depression, and LH were highly positively correlated. These three variables also had significant positive correlations with total violence, sexual violence, male-dominated background and child abuse history. Male-dominated background had statistically significant positive correlations with child abuse history. SES had statistically significant negative correlations with

**Table 2** Comparison of PTSD ($n$=66) and Non-PTSD ($n$=35) groups

| Variable | Non-PTSD | | PTSD | | $t$ score | Effect |
|---|---|---|---|---|---|---|
| | $M$ | SD | $M$ | SD | | Size[a] |
| Depression symptoms | 14.03 | 7.90 | 24.81 | 11.65 | 5.50** | 1.15 |
| Learned helplessness | 42.58 | 7.80 | 50.06 | 9.88 | 3.88** | 0.81 |
| Abuse related stress | 11.43 | 7.29 | 16.47 | 8.85 | 2.88** | 0.60 |
| ER visits (last 5 years) | 0.77 | 1.16 | 1.69 | 2.32 | 2.63** | 0.55 |
| Total number of life traumas | 3.91 | 1.93 | 5.12 | 2.74 | 2.58** | 0.54 |
| Sexual violence ($z$-score) | −0.33 | 0.87 | 0.17 | 1.03 | 2.57** | 0.54 |
| Total trauma related stress | 18.03 | 10.84 | 24.52 | 15.76 | 2.43** | 0.51 |
| Male-dominated background | 1.91 | 2.26 | 3.06 | 2.50 | 2.23** | 0.47 |
| Education | 12.14 | 2.35 | 11.29 | 1.78 | 2.02* | 0.42 |
| Total violence severity ($z$-score) | −0.27 | 0.85 | 0.14 | 1.04 | 2.00* | 0.59 |
| Verbal violence severity ($z$-score) | −0.23 | 0.85 | 0.12 | 1.05 | 1.83* | 0.38 |
| Child abuse history ($z$-score) | −0.21 | 0.70 | 0.11 | 1.12 | 1.73* | 0.36 |
| Partner violence time (years) | 8.29 | 6.84 | 7.86 | 7.72 | 1.73* | 0.36 |
| Cigarette smoking/day | 9.36 | 9.58 | 13.68 | 14.18 | 1.71* | 0.36 |
| SES | 33.26 | 12.20 | 29.95 | 10.88 | 1.39 (NS) | 0.29 |
| Time in shelter (months) | 3.98 | 4.08 | 3.14 | 3.58 | 1.06 (NS) | 0.22 |
| Physical violence severity ($z$-score) | −0.004 | 1.05 | 0.002 | 0.98 | 0.02 (NS) | 0.00 |

*$P$<0.05, **$P$<0.01 (one-tailed).

[a] Effect size was defined as the standardized difference between the means of the non-PTSD group and PTSD group.

**Table 3** The observed correlation matrix (Pearson *r*) of the main research variables

| | PTSD | Depression | LH | Total violence Severity | Sexual violence | Physical violence | Verbal violence | Child abuse history | Male-dominated background |
|---|---|---|---|---|---|---|---|---|---|
| Depression | 0.58** | | | | | | | | |
| LH | 0.46** | 0.60** | | | | | | | |
| Total violence severity | 0.23* | 0.28** | 0.22* | | | | | | |
| Sexual violence | 0.26** | 0.40** | 0.25* | 0.65** | | | | | |
| Physical violence | 0.14 | 0.03 | 0.17 | 0.64** | 0.10 | | | | |
| Verbal violence | 0.09 | 0.16 | 0.04 | 0.71** | 0.28** | 0.22* | | | |
| Child abuse history | 0.20* | 0.26** | 0.26** | 0.56** | 0.53** | 0.17 | 0.39 | | |
| Male-dominated background | 0.21* | 0.24* | 0.48** | 0.18 | 0.17 | 0.09 | 0.07 | 0.32** | |
| SES | −0.06 | 0.07 | −0.20* | −0.31** | −0.24* | −0.24* | −0.15 | −0.14 | −0.13 |

*$P<0.05$, **$P<0.01$ (one-tailed).

LH and violence severity (total, sexual and physical) but not with PTSD and depression. Total violence severity was positively correlated with child abuse history.

Hotelling's *t*-test was used to compare the effect of LH on PTSD and MDD with that of violence exposure. The correlation between PTSD symptoms and LH was significantly higher than the correlation between PTSD symptoms and total violence severity ($t=2.18$; Df=98). Similarly, the correlation between depression symptoms and LH was significantly higher than the correlation between depression symptoms and total violence severity ($t=3.93$; Df=98).

## Path Analysis

The path analysis was based on three linear regressions estimating the standardized $\beta$ coefficients of the different paths leading to the three dependent variables in this model (i.e. LH, PTSD and Depression). The $R^2$ values of the three regressions were 0.04, 0.36 and 0.47, respectively.

The path model is presented in Fig. 1. As predicted, violence severity had a significant direct effect on learned helplessness ($\beta=0.22$) but not on PTSD and depression. PTSD was significantly affected by depression ($\beta=0.46$) and learned helplessness ($\beta=0.17$). Similarly, depression was significantly affected by PTSD ($\beta=0.41$) and learned helplessness ($\beta=0.37$). The results of the path analysis are consistent with the hypothesis that LH mediates the contribution of violence severity to PTSD and depression.

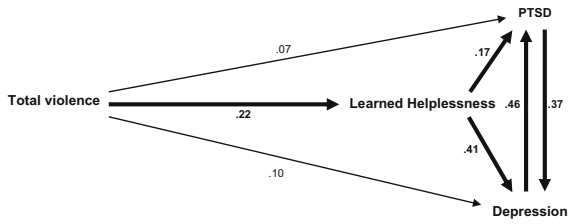


**Fig. 1** A path model describing the relationships between the major variables examined in the study (*Bold arrows* represent significant $\beta$ coefficients, one-tailed $p<0.05$)

## Logistic Regression Analyses

The contribution of the investigated variables to PTSD status was tested in three steps, corresponding to the hypothesized sequence of events in the participants' lives: (1) Child abuse history, male-dominated background and SES; (2) Total violence severity; (3) LH; and (4) Depression symptom severity. Step 1 showed an initial significant contribution of the background variables ($\chi^2$ (3, $N=96$)=7.9, $p<0.05$). Male-dominated background was the only factor with a statistically significant contribution at this step). Step 2 showed no statistically significant additional contribution of total violence severity, step 3 showed a statistically significant additional contribution of learned helplessness (added $\chi^2(1, N=96)=8.7$, $p<0.01$), and step 4 showed a statistically significant additional contribution of depression symptoms (added $\chi^2(1, N=96)=10.7$, $p<0.01$). The entire model was statistically significant ($\chi^2(6, N=96)=29.4$, $p<0.0001$) and the Nagelkerke *R* Square was 0.36.

A similar pattern of results was found using the same procedure to test the contribution of the investigated variable to MDD status. Step 1 showed an initial significant contribution of the background variables ($\chi^2$ (3, $N=96$)= 9.8, $p<0.05$), with male-dominated background being the only factor with a statistically significant contribution). Step 2 showed no statistically significant additional contribution of total violence severity; step 3 showed a statistically significant additional contribution of learned helplessness (added $\chi^2(1, N=96)=4.7$, $p<0.05$), and step 4 showed a statistically significant additional contribution of PTSD symptoms (added $\chi^2(1, N=96)=13.3$, $p<0.01$). The entire model was statistically significant ($\chi^2(6, N=96)=29.2$, $p<0.0001$) and the Nagelkerke *R* Square was again 0.36.

## Discussion

The results of this study replicate previous findings of the frequent occurrence of PTSD and MDD in battered women, and a significant co-occurrence of the two. As hypothesized, the contribution of violence to PTSD and MDD is mediated by LH. Thus, LH magnifies the pathogenic effect of domestic violence. Interestingly, LH scores of participants who did not develop PTSD ($M$=43.2, SD=7.5) were very similar to the average scores of 180 women in three other convenience samples of women who completed the same questionnaire ($M$=41.6, SD=7.8). On the other hand, LH scores of the study's PTSD-positive patients ($M$=51.5, SD=10.1) were considerably higher than those of the other samples. Thus, in battered women, occurrence of PTSD may be specifically associated with high levels of LH.

An additional important finding of this study is that LH was associated with biographical background factors and particularly with male-dominated background. The latter, however, did not correlate with violence exposure, but rather contributed to the consequences of such exposure. Thus, adverse early cultural and educational influences seem to negatively affect reactions to abusive relationships later in life, and diminish resilience in battered women. In other words, educational and cultural influences which promote female submissiveness and prejudice against women are most likely undermining the emotional resources and coping skills of women who grow up in such environments, thereby increasing their likelihood of developing PTSD and depression as a consequence of male violence. Our findings imply that LH may not only be a result of early cultural influences, but may also act as a promoting cultural agent of the multi-generational cycle of female vulnerability to victimization. A similar association between cultural background and LH was pointed out by Dion and Giordano (1990) who found that levels of LH and depression among South-Asian and South-European students were significantly higher than among Anglo-Saxon and East-European students. Our findings are also in agreement with Yoshihama's (2002) and Cheung and Kwok's (1996) cross-cultural studies mentioned earlier, which found cultural background and influences to be associated with women's self-perceptions and coping mechanisms.

Depression, in this work, was highly correlated with all other variables—and specifically with PTSD. Whilst our findings cannot confirm the notion that depression precedes PTSD, they clearly indicate that depression ought to be targeted by treatment interventions designed for battered women.

As in previous studies, this work showed a statistically significant correlation between violence severity and PTSD. Additionally we found a differential effect of subtypes of violence. Sexual violence was the strongest predictor of the PTSD and MDD (as in Bennice et al. 2003) whereas physical violence alone was not significantly correlated with them. These results are consistent with Arias and Pape's (1999) findings.

Child abuse history was significantly correlated with LH, PTSD, depression, the violence variables and the background variables, except SES. These findings are in accord with the large body of literature describing the detrimental effects of child abuse on mental health in adulthood and more specifically on battered women's mental health (e.g. Astin et al. 1995; Kemp et al. 1995; Silva et al. 1997; Ullman and Brecklin 2002), and supports our hypothesis that a history of child abuse increases LH and the risk for PTSD and depression.

SES had statistically significant negative associations with LH, total violence, physical violence and sexual violence. This finding partially supports Kessler et al. (2001) and Tomes et al. (1990) who found SES to be a predictor of violence severity. However, we did not replicate their findings that SES predicts depression and PTSD. This lack of statistically significant associations between SES and the outcome variables may be a result of the overall low SES and high levels of PTSD and depression which characterized our sample.

Whilst this study sample size was larger than that of most other studies of battered women in shelters, it is nonetheless limited by its relatively homogenous sample. Specifically, most subjects in our study were exposed to high levels of physical and other forms of violence. This clearly limits the study's ability to properly assess the effect of various degrees of violence severity. Generalization of our findings therefore requires further investigation of a wider range of violence exposure, which typically exists outside the shelters. Another possible sampling bias could result from the voluntary nature of the sample and the language inclusion criteria. We were unable to obtain comparative information about nonparticipating residents of the shelters due to the strict confidentiality policy in the shelters. Additionally, an important distinction between our study's participants and the general population of battered women is that by voluntarily moving to a shelter, our participants have shown an ability to escape the abusive relationship. It is nonetheless striking that so many of the women who acted to free themselves were still suffering from PTSD and MDD. This finding, therefore, might be read as suggesting that even in a more resilient sample of battered women, PTSD and MDD are persistent and debilitating. Finally, although this study examined one type of trauma inflicted upon women exposed to violence, the tense political situation and ongoing terror attacks in Israel no doubt affect their lives in many ways, some yet to be determined. Although none of the participants reported direct exposure or loss resulting from war or terror in recent years, these life stressors could act as confounding factors that should be considered as potentially limiting to a generalization of our findings.

In conclusion, this study suggests that LH in battered women is associated both with prolonged exposure to violence and other risk factors outside of the abusive relationship, and that LH mediates the contribution of violence exposure to PTSD and MDD in this population. Battered women who acquire LH may be at higher risk of developing PTSD and MDD than those who do not acquire LH. These results support the notion that treating LH may help to reduce the incidence of PTSD and MDD amongst battered women. Specifically, treatment interventions aimed at achieving empowerment—a concept that negates and contradicts LH—may be an effective way to reduce current and prolonged mental sequelae of domestic violence. One such example is the Trauma Recovery and Empowerment model (TREM; Fallot and Harris 2002) which is effective in reducing symptom levels and improving overall functioning in female domestic violence survivors with PTSD.

Battered women's passiveness and reluctance to leave the abuser have been viewed by some not as a sign of LH, but rather as a rational and conscious choice based on any of several considerations: the realistic assessment that taking any action may drastically increase the danger for both the woman and her children, economic dependency on the abuser and lack of alternative housing, social and cultural values that dictate family cohesion at all costs, or a free willed decision to try and work out the problems within the relationship (Peled et al. 2000). In contrast, LH in battered women can be viewed as a likely and expected response to prolonged traumatization. The results of this study suggest that the development of LH in battered women is associated with difficult life circumstances, above and beyond violence severity and duration. They also suggest that LH in this group is more likely to be a psychological state arising from dire circumstances and past influences than a maladaptive reaction to inconsistent stimuli.

Our findings highlight the importance of intervention efforts aimed at preventing and reducing LH in this population, and invite further research into the factors that bring about—and factors that may help prevent—the development of LH in prolonged trauma victims.

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