Indicators of Exposure to Wife Abuse

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On a analysé les données collectées au cours d'une interview au téléphone auprès de 406 femmes mariées, sélectionnées de façon aléatoire (y compris les conjoints de fait) en suivant trente indicateurs potentiels de violence conjugale. Les femmes qui ont rapporté qu'elles avaient subi de la violence conjugale au cours de l'année précédente étaient, plus souvent que les femmes qui ne subissaient pas de violence conjugale, susceptibles d'avoir mis un terme à leur mariage, d'être allées aux urgences, d'avoir été hospitalisées ou d'avoir pris contact avec une infirmière de la santé publique, un psychiatre ou un psychologue au cours de l'année passée. Dans la plupart des cas, elles avaient souffert de larges ecchymoses, des déchirures, des entorses ou des foulures. Elles avaient eu des maux de tête et de dos, elles avaient souffert d'états morbides et d'alcoolisme plus souvent que les femmes ne subissant pas de violence conjugale. Les femmes battues étaient souvent plus scolarisées que leur partenaire, leurs revenus de ménage étaient relativement moins élevés et leur partenaire était souvent au chômage. Connaître les indicateurs significatifs peut faciliter l'identification des femmes subissant des violences conjugales et peut conduire à l'élaboration de protocoles de traitement de signalements plus efficaces.

Data collected via a telephone survey of 406 randomly selected married (including common-law) women were analyzed with respect to 30 potential indicators of exposure to wife abuse. Women who reported exposure to wife abuse within the previous year were more likely than women free of abuse to have terminated their marriage, to have visited an emergency room, to have been hospitalized, and to have contacted public health nurses, psychiatrists, and psychologists, in the preceding year. They also were more likely to have sustained large bruises, lacerations, sprains or strains, and to have more frequent headaches and backaches, psychiatric morbidity, and alcoholism than women free of abuse. The abused women were likely to have more education than their partners, relatively lower total household incomes, and partners who were unemployed. Knowledge of significant indicators can facilitate the identification of women who have experienced wife abuse and lead to the development of more effective screening protocols.

In 1992, the Canadian Nurses Association published "Family Violence: Clinical Guidelines for Nurses" in an attempt to inform nurses and dispel commonly held myths about family violence, and to provide direction for nursing practice in a variety of clinical settings. Included in the publication are "examples of indicators of family violence" (p. 8) that nurses are advised to be familiar with in order to identify victims, even those who do not present as obvious cases. Nurses are provided with examples of "family violence screening questions" (p. 8) to incorporate into their assessment procedures, and are advised to explore with all clients the potential of violence. There is an underlying theme that certain factors should heighten nurses suspicion that family violence has occurred. For example, the authors suggest that victims may suffer from nutritional deprivation, sleep deprivation, emotional trauma, neglected follow-up for Pap smears and breast lumps, untreated sexually

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transmitted diseases or yeast infections, and frequent premature discontinuation of antibiotic therapy. The authors also describe "abuse indicators for women," including injuries to bones or soft tissues, bruising to the abdomen, breast or perineum, particularly if the woman is pregnant, bite marks, unusual burns, frequent visits to health facilities, depression, miscarriages, and poverty.

Stark and his colleagues claimed there is a definite pattern in the characteristics of women who have been abused (Stark, Flitcraft, & Frazier, 1979; Stark et al., 1981). In particular, they claimed that abused women could be readily identified by the presence of characteristic injuries: those that can only be sustained in an assault, that cannot be explained by, or is inconsistent with, the immediate alleged etiology, that involve more than one anatomical site, and that involve the face, neck, chest, breasts or abdomen. They further reported that abused women use medical emergency services more frequently than those who are not abused; may often complain of "symptoms without evidence of physiologic dysfunction" (Stark et al., 1981, p. 28), such as headaches or nonspecific muscle pain; and frequently use tranquilizers, sleep medications, and alcohol. Other descriptive studies suggest that abused women may sustain fractures—particularly to the nose, ribs, jaw, and arms—multiple contusions, lacerations, burns, and head injuries (Appleton, 1980; Gayford, 1975; Rounsaville, 1978; Rounsaville & Weissman, 1978). Additionally, Haber (1985) and Haber and Roos (1984) reported that approximately one-half of the women who presented to a chronic pain centre had a history of physical and/or sexual abuse. All of their problems with pain, including back pain and headache, reportedly followed the first incident of abuse.

On the other hand, other studies have concluded that there are no characteristics that differentiate women who are abused from women who are not (Council on Scientific Affairs, 1992), and therefore no risk markers for women who are more likely to be assaulted by their partners (Hotaling & Sugarman, 1986). The findings related to alcoholism among abused women remain equivocal: some have indicated that abused women are more likely than nonabused women to be alcohol-dependent (Bergman, Larsson, Brismar, & Klang, 1987; Hillard, 1985; Stark et al., 1979); others have failed to confirm this (Appleton, 1980; Bullock & McFarlane, 1989; Van Hasselt, Morrison, & Bellack, 1985)

Hotaling and Sugarman (1990) concluded that "little heuristic value can be gained by focusing primarily on the victim in the assessment of risk to wife assault" (p. 12). They examined those factors that are possibly causal in nature or precursors to wife abuse without examining the sequelae or consequences of wife abuse. They may be correct in suggesting that characteristics of victims cannot help us explain why abuse occurs, but outcomes of wife

abuse may help health professionals identify victims who have not sought help. Conversely, if indicators are unlikely to differentiate abused women from non-abused women, health professionals may be placing too much emphasis on injury and other health problems as important assessment tools.

Several studies have provided evidence that abused women suffer from depression, anxiety, and low self-esteem, and may attempt suicide (Cascardi, Langhinrichsen, & Vivian, 1992; Sato & Heiby, 1992). Their mental health is reportedly poorer than that of women free of abuse (Aguilar & Nightingale, 1994; Jaffe, Wolfe, Wilson, & Zak, 1986; Kérouac, Taggart, Lescop, & Fortin, 1986), and they are more likely to be prescribed medications, particularly anxiolytics, sedatives, and anti-depressants (Dobash & Dobash, 1979; Stark et al., 1979; Tearmann Society for Battered Women, 1988). Several investigators have reported that a significant proportion of the women who attend emergency rooms are abused within their intimate relationships (Appleton, 1980; Goldberg & Tomlanovich, 1984; McLeer & Anwar, 1989; Rounsaville, 1978; Rounsaville & Weissman, 1978; Tilden & Shepherd, 1987), but their use of other health care services has been less well studied. Brismar, Bergman, Larsson, and Strandberg (1987) found that the health care consumption by abused women in Sweden was considerably greater than that of non-abused women. Similarly, Stark et al. (1981) reported that, at one hospital, the psychiatric emergency service was used by five times as many abused as non-abused women and 77% of the visits to the women's clinic were made by abused women.

Purpose

There is a paucity of empirical evidence supporting the claim that particular "screening questions" or "abuse indicators" are valid assessment tools in the identification of women who have been exposed to family violence. The purpose of the current research was twofold: first, to identify indicators of exposure to wife abuse or violence in the form of bodily aggression; second, to take a first step toward generating a predictive model of exposure to wife abuse. Such a model could include the potential outcomes of abuse (indicators of exposure to wife abuse) as well as risk markers or precursors of abuse, and could serve as the basis of a screening protocol.

The research to date on this subject suffers from several significant limitations: much of it is descriptive or exploratory in nature with little reference to comparison groups, for the most part, it has used convenience samples of women residing in emergency shelters or attending emergency rooms, and it has paid little attention to the health care utilization patterns of women who experience wife abuse. In the current study, we attempted to address some of these gaps: we surveyed a community-based, random sample of women, whereby we could compare abused and non-abused women.

Method

Sample

Data were collected from a probability sample of married women (including those in common-law relationships), 18 years of age or older, who were currently living with, or had in the previous year lived with, a male partner in the city of Edmonton, Canada. Subjects were selected using a random-digit dialing method (Lalu, 1991), and of 557 women who met the eligibility criteria, 406 (72.9%) agreed to participate (Ratner, 1991, 1993).

Procedure

The author conducted 20-minute telephone interviews to ascertain the annual cumulative incidence of wife abuse, associated health problems and health care utilization patterns, and socio-demographic characteristics of the women and their partners. Smith (1989) found that telephone and face-to-face surveys of wife abuse compare favourably, including considerations of the representativeness of the sample and the quality of the data. Respondents were informed of the purpose of the study, and that they had the right to refuse to participate, refrain from answering any questions, or terminate the interview at any time.

Brush (1993) argued that the most significant threat to the validity of surveys on wife abuse is the "context of the interaction between interviewer and interviewee" (p. 249). She claimed that it was essential to infuse trust, safety, and intimacy into the interviewing relationship. Although the current study was limited by the context of an anonymous telephone call, such an infusion was made possible by the fact that all interviews were conducted by one female interviewer (the author) who is knowledgeable about and sensitive toward the issue of wife abuse. The interviewer ensured the safety of the respondents and stayed on the line for as long as respondents wanted to discuss their experiences. Women who seemed distressed or reported abuse were referred to appropriate support services.

On the basis of empirical evidence, it has been suggested that the 30 variables included in the current analysis are possible indicators of exposure to wife abuse. The variables assess the nature and extent of injuries sustained, the presence of headache or backache, alcoholism, psychological health, prescription drug use, health service utilization, and selected personal characteristics of the abused wife or her male partner. These variables may indicate precursors of wife abuse or aid in the identification of victims. They may form the basis of an effective screening mechanism suitable for all health care settings.

Instruments

Most of the variables examined in the current analysis were measured via single-item indicators. Psychiatric morbidity was assessed by responses to the 28-item General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979), with items scored on a 4-point response scale from *not at all* to *much more than usual*. The recommended (0-0-1-1) scoring method was employed and dichotomized responses were summed; total scores of 5 and greater were considered indicative of psychological illness or psychiatric morbidity. Using this scoring method, the GHQ has a reported sensitivity ranging from 80% to 92%, a specificity ranging from 89% to 92%, and an 8% to 14% overall misclassification rate when contrasted with psychiatrists' clinical assessments (Goldberg & Hillier, 1979; Rabins & Brooks, 1981). Concurrent validity coefficients, correlating the GHQ with psychiatrists' ratings of their structured interviews have ranged from .70 to .83, and a split-half reliability coefficient of .78 has been reported (Vieweg & Hedlund, 1983) (.71 in the current study). The depression and anxiety subscales of the GHQ correlated from .75 to .87 and .43 to .83, respectively, with the Leeds Scales, self-assessments of depression and anxiety in women who recently suffered the death of a baby (Forrest & Gerg, 1982). Construct validity of the subscales has been supported by factor analysis (Goldberg & Hillier, 1979).

Alcoholism was assessed with the CAGE (an acronym based on the key words *Cut down, Annoyed, Guilty,* and *Eye-opener*) (Ewing, 1984), a screening tool consisting of four questions about covert problem drinking. An affirmative response to two or more questions indicated alcoholism. The sensitivity and specificity of the CAGE were found to range from 75% to 93% and 76% to 96%, respectively, in comparison to a diagnosis of alcohol abuse based on the Michigan Alcoholism Screening Test (MAST), a detailed chart review, and an analysis of the quantity of alcohol consumed (Bush, Shaw, Cleary, Delbanco, & Aronson, 1987); against a standardized test of excessive drinking defined as more than 16 drinks per day (Bernadt, Taylor, Mumford, Smith, & Murray, 1982); and against interview responses regarding the quantity and frequency of alcohol intake (King, 1986). Concurrent validity coefficients comparing the CAGE with the Clydebank Questionnaire and the brief MAST in a community sample were .77 and .57, respectively (Saunders & Kershaw, 1980).

Exposure to wife abuse was measured with the 19-item Conflict Tactics Scales (CTS), Form N (Straus, 1979) of psychological and physical aggression used or experienced in conflicts with a partner. Three subscales (reasoning, verbal aggression, and physical aggression) comprise the scale, but in keeping with the adopted definition of wife abuse, only items related to physical aggression were included in the current analysis. Women were defined as physically abused if they reported exposure to one or more of the physical

aggression items within the previous year. The internal consistency (Cronbach's α) of the CTS has ranged from .80 to .83 (.80 in the current study) and item-total score correlations range from .70 to .87 (McFarlane, Parker, Soeken, & Bullock, 1992; Straus, 1979). Concurrent validity has been established by comparing different family members' reports of domestic violence and by comparing CTS scores with in-depth interview data (Browning & Dutton, 1986; Gelles, 1972; Straus, 1974; Straus, Gelles, & Steinmetz, 1980).

The data regarding physical health problems—including backache, headache, and injuries, prescription drug use, health care service utilization—and socio-demographic information were generated from items constructed by the author, and where possible, were derived from national surveys. The three questionnaires and the single-item indicators were pretested on a sample of 25 women.

Analysis

Each of the 30 study variables (see Table 1 for listing) was evaluated with respect to its relationship to exposure to wife abuse. For these bivariate analyses, contingency table methods ($\chi 2$ tests) were used, unless the variable was continuous, in which case Student's t-tests were carried out. We then attempted to reduce the number of variables to a smaller subset to develop a predictive model; only those variables most associated with the outcome of interest were included. Models that are parsimonious are more likely to be numerically stable and are more easily generalized (Hosmer & Lemeshow, 1989).

The entire set of 30 variables was then entered, en bloc, in an initial logistic regression model. The importance of each variable was verified by examining the Wald statistic, which compares the maximum likelihood estimate of the slope coefficient (β) to the estimate of its standard error (SE(β)), and by comparing the estimated coefficient with the coefficient from a bivariate model containing only that variable. Variables that did not contribute to the model were eliminated and a new model fit. This process was repeated with each new model compared to the old model through the likelihood ratio test until a model that contained only the essential variables was obtained. The selection of the essential variables was verified by repeating the model building process using stepwise logistic regression with forward selection and backward elimination with a criterion for entry of $p < .05$ and for elimination of $p > .10$.

Once the essential variables were determined, the need for interaction terms was examined by adding variables to the model that were equal to the product of the values of two of the essential variables. The process was repeated until all possible, plausible interactions were evaluated. The continuous scaled variables were checked to ensure that they were linear in the logit

(the logit is the logarithmic component of the logistic model that represents the ratio of frequencies of the two different outcomes: abused and non-abused in this model [Last, 1988]). No adjustments to the model were found to be necessary.

The overall fit and adequacy of the model were assessed. Summary measures of goodness-of-fit, including the Pearson Chi-square statistic, the deviance, and the Hosmer-Lemeshow test statistics (C), were calculated to summarize the agreement of observed and fitted values. Other logistic regression diagnostics were carried out to determine that fit was supported over the entire set of covariate patterns: the leverage values, the influence values, and changes in the value of the Pearson Chi-square statistic with deletion of covariate patterns were plotted against the estimated probabilities. Those covariate patterns with large values on one or more of the diagnostic statistics were examined to determine whether their observed exposure status was different than expected and to assess the influence they had on the model.

Results

Of the 406 respondents, 81.5% were married, 13.5% were living in common-law relationships, and 5% had become separated, divorced or widowed within the previous year. The mean age of the respondents was 39.4 years ($SD = 14.3$; range: 18-82). The relationship of interest had persisted an average of 14.5 years ($SD = 13.6$; range: <1-55 years). The women had an average of 1.8 children ($SD = 1.4$; range: 0-10) with 1.1 children currently in residence ($SD = 1.1$; range: 0-5). The majority (60.7%) were employed outside the home, and the median level of education attained was a completed high school diploma. The results from seven women were eliminated from the logistic regression analysis due to missing data.

Forty-three (10.8%) women reported physical abuse perpetrated by their male partners in the previous year. Table 1 indicates the relationship between each of the potential indicators and reported exposure to wife abuse within the previous year. The average age of non-abused women was 40.5 years; that of women who reported abuse was 30.1 years. Also, women who reported that they were free of abuse were likely to have been married longer than those who reported abuse ($M = 15.4$ years versus $M = 6.6$ years, respectively). Women who were abused also had more children residing with them ($M = 1.7$) than women free of abuse ($M = 1.1$). The state of a woman's marriage (whether ongoing or terminated) was highly related to whether she had been exposed to wife abuse in the previous year: wife abuse was reported by 8% of women whose marriages continued, versus almost 71% of women whose marriages had ended in the previous year.

Table 1

Indicators of Exposure to Wife Abuse ($N = 399$ interview respondents)

Variable	Coding	No. of Women	No. abused (%)	χ^2
State of Marriage	Continued	383	31 (8.1)	59.9***a
	Ended	17	12 (70.6)	
Unemployed	No	269	25 (9.3)	1.4
	Yes	131	18 (13.7)	
Partner Unemployed	No	370	33 (8.9)	14.8***
	Yes	30	10 (33.3)	
Education	< High School	83	12 (14.5)	1.5
	High School	129	13 (10.1)	
	Postsecondary	187	18 (9.6)	
Partner's Education	< High School	70	10 (14.3)	1.1
	High School	131	14 (10.7)	
	Postsecondary	187	18 (9.6)	
Disparity in Education[b]	≤ Education	278	24 (8.6)	4.2*
	> Education	109	18 (16.5)	
Wife's Income	< $10,000	152	17 (11.2)	1.2
	$10,000-$19,999	101	14 (13.9)	
	≥ $20,000	111	10 (9.0)	
Combined Income	< $30,000	104	18 (17.3)	9.1*
	$30,000-$49,999	146	18 (12.3)	
	≥ $50,000	100	4 (4.0)	
Visited ER in Past Year	No	314	26 (8.3)	8.1**
	Yes	86	17 (19.8)	
Public Nurse Contact in Past Year	No	287	22 (7.7)	9.0**
	Yes	113	21 (18.6)	
Psychiatrist Contact in Past Year	No	381	35 (9.2)	17.1***
	Yes	19	8 (42.1)	
Hospitalized in Past Year	No	322	28 (8.7)	6.2*
	Yes	78	15 (19.2)	
Psychologist Contact in Past Year	No	366	33 (9.0)	11.4***
	Yes	34	10 (29.4)	
Sustained Large Bruises in Past Year	No	168	10 (6.0)	6.1*
	Yes	232	33 (14.2)	
Laceration with Sutures in Past Year	No	382	38 (9.9)	4.0*
	Yes	18	5 (27.8)	
Sprain or Strain in Past Year	No	302	25 (8.3)	6.8**
	Yes	98	18 (18.4)	
Frequency of Headaches	Never/Rarely	141	7 (5.0)	12.7**
	Occasionally	147	15 (10.2)	
	Frequently	11	121 (18.9)	
Headache Intensity	Slight/Mild	107	8 (7.5)	2.9
	Moderate	174	19 (10.9)	
	Severe	101	15 (14.9)	
Frequency of Backaches	Never/Rarely	161	13 (8.1)	6.5*
	Occasionally	128	11 (8.6)	
	Frequently	111	19 (17.1)	

A woman's employment outside the home, her income, her education, and her partner's education were unrelated to wife abuse. However, disparity in education was related to abuse; women with more education than their partners were more likely to report abuse (17%) than those with equivalent or less education (9%). Women whose partners were unemployed were more likely to report abuse (33%) than those whose partners were employed (9%). Women who reported gross combined incomes of more than $50,000 annually reported less abuse (4%) than those who reported $30,000 to $49,000 (12%) or less than $30,000 (17%).

Several indicators of health and health care were found to have significant relationships with exposure to wife abuse: significantly higher levels of wife abuse were reported by women who had attended an emergency room (ER) within the previous year (20%) versus (8%), or who had had contact with public or community health nurses (19%) versus (8%). Also, exposure

Table 1 (continued)

Variable	Coding	No. of Women	No. abused (%)	x^2
Backache Intensity	Slight/Mild	149	12 (8.1)	4.5
	Moderate	143	21 (14.7)	
	Severe	45	8 (17.8)	
Tranquilizers Taken in Past Month	No	375	38 10.1)	1.7
	Yes	24	5 (20.8)	
Psychotropic Drugs Taken in Past Month	No	342	34 (9.9)	1.6
	Yes	58	9 (15.5)	
Alcoholism (CAGE)	No	380	36 (9.5)	10.4**
	Yes	20	7 (35.0)	
Psychiatric Morbidity (GHQ)	No	258	10 (3.9)	34.9***
	Yes	139	33 (23.7)	

Variable	Non-Abused Women M (SD)		Abused Women M (SD)		t (df)	p
Age	40.5	(14.5)	30.1	(6.8)	8.0c (97)	< .001
Years in Relationship	15.4	(13.9)	6.6	(5.1)	8.3c (138)	< .001
Number of Children at Home	1.1	(1.1)	1.7	(1.2)	3.6 (398)	< .001
Number ER Visits in Past Year	0.3	(0.9)	0.9	(1.3)	2.8c (47)	.008
Number Public Health Nurse Visits	0.7	(3.1)	1.7	(2.8)	2.1 (398)	.04
Number of Days in Hospital Past Year	1.2	(6.2)	3.0	(8.0)	1.4c (48)	.17

a Yates Correction factor used in all 2 x 2 analyses.
b Woman's education relative to her partner's.
c Unequal variances; separate t-test formula used.
*p < .05. **p < .01. ***p < .001.

to wife abuse was reported by 42% of women who had seen a psychiatrist, 19% who had been hospitalized for any reason, and 29% who had seen a psychologist within the previous year. These reported rates of wife abuse were all significantly higher than those for women who did not have such health care contacts.

Women who reported specific injuries within the previous year, including large bruises, lacerations requiring suturing, and sprains or strains, were more likely to report wife abuse. The frequency of headaches and backaches were positively associated with reported abuse. Abuse was reported by 19% of women who experienced frequent headaches versus 5% who rarely or never experienced headaches, and 17% of women who experienced frequent backaches versus 8% who rarely or never experienced backaches. The intensity of headache or backache was not associated with reported abuse.

Psychiatric morbidity (non-psychotic psychiatric illness, including anxiety and depression) and alcoholism were associated with exposure to wife abuse. Almost 24% of the women with psychiatric morbidity reported being abused, compared to 4% who were free of morbidity. Thirty-five percent of women who suffered alcoholism reported abuse, compared to approximately 10% who were free of alcoholism. The use of psychotropic drugs (including antidepressants, tranquilizers, and sleeping pills) or tranquilizers alone was not associated with the reporting of abuse.

According to the logistic regression model (Table 2) women whose marriages had ended within the previous year had a 7.3 times greater chance (odds ratio) of having been abused within the previous year than women whose marriages continued, after controlling for the other six variables in the model. Women who had seen a psychiatrist within the previous year were 6.9 times as likely to have been abused as women who had not seen a psychiatrist, when the other key variables are controlled.

A goodness-of-fit test of the model was carried out, based on the procedure developed by Hosmer and Lemeshow (1989). The observed numbers of women who were and were not abused were compared to the expected numbers using the model and a high level of fit was found ($C = 6.55$, $p = .59$) [$\chi2 (391, N = 399) = 327.26$, $p = .99$; deviance = 170.51]. Although not an indicator of the fit of a model, the adequacy of a model's ability to correctly classify cases according to the outcome variable can also be assessed. The overall classification of this model was 93% using a cutpoint of .50. Sensitivity and specificity were 44.2% and 98.9%, respectively. The positive predictive value was 82.6% and the negative predictive value was 93.6%. Thus, some cases and their respective covariate patterns were not well fit by the model.

Table 2

Multivariate Logistic Regression Model of Indicators Associated with Exposure to Wife Abuse

Variable	β	SE(β)	Odds Ratio	95% Confidence Interval
Age[a]	–0.10	0.029	0.91	0.86–0.96
Number of Children	0.62	0.186	1.85	1.29–2.66
Laceration	1.76	0.685	5.83	1.52–22.34
Partner unemployed	1.81	0.578	6.10	1.96–18·95
Psychiatrist	1.93	0.697	6.90	1.76–27.06
Psychiatric Morbidity	1.56	0.439	4.78	2.02–11.29
State of Marriage	1.99	0.674	7.28	1.94–27.26
Constant	-1.26			

a Odds ratio for age based on 5-year reduction is: 1.64 (1.23, 2.18).

Discussion

The odds ratio estimates and associated confidence intervals of the final model show that the seven variables in the model are strongly associated with the reporting of exposure to wife abuse. However, several additional variables such as ER visits, public/community health nurse contacts, psychologist contacts, and hospitalizations, were found to be strongly associated with reported wife abuse on bivariate analysis. Rather than being irrelevant, these variables may have been only marginally inferior to those included in the model, and unnecessary given the other variables in the model. It is possible that other variables or combinations of variables could result in an equally well-fit model. In addition, some of these variables were presumably incorporated in the variables included in the model. For example, contact with psychologists is likely subsumed by psychiatric morbidity and visits to an emergency room are likely subsumed by lacerations that require suturing.

In a review of 52 studies Hotaling and Sugarman (1986) evaluated 97 potential indicators of wife abuse and made an important contribution to our understanding of indicators. They concluded that women's income, education, and employment status do not discriminate wife abuse victims from non-victims. Similarly, the current study found these variables to be unrelated to wife abuse. However, it has consistently been found that age is associated with wife abuse; younger women are more likely to report victimization (Gaquin, 1977; Gelles, 1972; Stark et al., 1981; Straus et al., 1980). In contrast with Hotaling and Sugarman's conclusion that alcohol usage was consistently unrelated to wife abuse, our study revealed that it was. Shields and Hanneke (1983), Stark et al. (1979), and Telch and Lindquist (1984) also reported greater use of alcohol among victims of wife abuse. The use of psychotropic drugs or tranquilizers was not found to be associated with wife abuse. Other

studies are equivocal on this possible association. Of five studies reviewed by Hotaling and Sugarman, three reported a significant association between drug usage and wife abuse victimization (Coleman, Weinman, & Hsi, 1980; Semmelman, 1982; Stark et al., 1981).

Findings related to the characteristics of abusive husbands remain inconsistent. Hotaling and Sugarman (1986) found that although several studies reported a negative relationship between a man's level of education and the likelihood of wife abuse, "the two most representative samples do not support this finding" (p. 113) (cf. Hornung, McCullough, & Sugimoto, 1981; Van Hasselt, Morrison, & Bellack, 1985). The results of the current study also concur with this. Hotaling and Sugarman uncovered only two studies that reported an association between unemployment among men and wife abuse (Peterson, 1980; Straus et al., 1980). Their cutoff criteria for a consistent marker were that it must be measured in at least three independent investigations and found to be significant in at least 70% of studies. In light of this and the findings of the current study, unemployment among men can be considered to be associated with wife abuse.

Four variables included in this study are characteristics of the couple: the status of the marriage, the combined or family income, the number of children residing at home, and disparity in education between the spouses. All were found to be associated with wife abuse: women whose marriages had ended within the previous year, and those with family incomes of less than $30,000 per annum, relatively more children at home, and more education than their partners were most likely to report abuse. Hotaling and Sugarman (1986) also reported that women whose marriages had recently ended and those with a lower family income or social class reported consistently higher rates of wife abuse. However, in a subsequent study, Hotaling and Sugarman (1990) suggested that the relationship between socioeconomic status and wife abuse is debatable. In their four-group analysis of variance, "socioeconomic status did not discriminate between physically assaulted wives and non-physically assaulted wives; however, lower socioeconomic women were more likely to be severely assaulted" (p. 10). They did not find the number of children in a family to be a significant marker of wife abuse. Finally, Hotaling and Sugarman (1986) concluded that educational disparity within the couple was an inconsistent marker, citing four studies that found a positive association and two that did not. In light of the current findings, educational disparity where the wife has a higher level of education than the husband can be considered to be associated with wife abuse.

Almost all of the variables related to health care utilization and health problems, included in the current study were associated with wife abuse. Stark et al. (1979, 1981) similarly concluded that abused women can be dis-

tinguished from non-abused women by the frequency, anatomic location, and types of injuries they sustain. Other investigators have reported that abused women are at higher risk for depression, anxiety, and somatization (Jaffe et al., 1986; Kérouac et al., 1986), and are relatively greater consumers of health care than non-abused women (Brismar et al., 1987; Stark et al., 1981).

In the current cross-sectional survey it was not possible to discern the temporal relationship of the variables of interest. However, it is likely that many of the variables in the model (e.g., the occurrence of lacerations, visits to a psychiatrist, psychiatric morbidity, and the state of the marriage) are likely to be sequelae of wife abuse. The purpose of the current study was to assess precursors or consequences of exposure to abuse rather than to test etiologic hypotheses or to identify causal factors of wife abuse. Although such knowledge cannot contribute to our understanding of the causes of wife abuse or to the identification of women who are at high risk but as yet free from wife abuse, it can facilitate effective screening of victims.

The model developed in the current analysis has a sensitivity of 44% and cannot be advocated as a screening tool; more than half of abused women would remain undetected. However, these findings lend support to the claim that there are indicators that can facilitate the identification of women who have experienced wife abuse. Knowledge of these and discovery of other indicators can lead to the development of more effective screening protocols and result in an elevated index of suspicion when a practitioner is in contact with a woman with the relevant characteristics. Such knowledge may prompt further investigation from practitioners who otherwise may be unwilling or unlikely to screen for abuse. To date, instituting standardized screening protocols has resulted in reported identification rates of 23% to 30% (McLeer & Anwar, 1989; Tilden & Shepherd, 1987). If health care professionals are to meet the challenge of effectively assisting women who are abused, a higher proportion of the victims must be correctly identified.

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