

Researching Domestic Violence Against Women: Methodological and Ethical Considerations

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The results of three population-based studies on violence against women in Nicaragua are compared in this article. Two of the studies were regional in scope (León and Managua) and focused specifically on women's experiences of violence, whereas the third study was a Demographic and Health Survey (DHS) conducted with a nationally representative sample of women. The lifetime prevalence estimates for women's undergoing physical violence from a partner were significantly higher in the León study (52 percent) and Managua study (69 percent), compared with that given in the DHS (28 percent). Possible explanations for the differences are examined through pooled multivariate logistic regression analysis, as well as analysis of six focus-group discussions carried out with field-workers and staff from the three studies. The most important differences that were found concerned ethical and safety procedures and the interview setting. The results indicate that prevalence estimates for violence are highly sensitive to methodological factors, and that underreporting is a significant threat to validity. (STUDIES IN FAMILY PLANNING 2001; 32[1]: 1–16)

Violence against women is increasingly recognized as a significant public health and human rights concern (Heise et al. 1999). One of the most common forms of violence against women is the physical and sexual abuse of women by a current or former intimate partner. Abuse of this sort has been associated with a broad range of serious physical and mental health problems, such as depression (Campbell and Lewandowski 1997; Danielson et al. 1998; Roberts et al. 1998; Astbury 2000), suicide (Wiederman et al.

1998; Thompson et al. 1999), bodily injury (Grisso et al. 1999; Kyriacou et al. 1999), and homicide (Bailey et al. 1997). Women who have experienced sexual or physical assault are more likely to suffer a variety of sexual and reproductive health disorders, including chronic pelvic pain (Schei and Bakketeig 1989; Golding 1996), sexually transmitted infections (Martin et al. 1999; Piot 1999), unwanted pregnancy (Gazmararian et al. 1995; Dietz et al. 1999), and adverse pregnancy outcomes, including miscarriage and infants of low birth weight (Parker et al. 1994; Petersen et al. 1997; Curry et al. 1998).

Physical and sexual violence can also have an impact on fertility. Many international studies have found that women who suffer physical or sexual abuse from an intimate partner are more likely than nonabused women to have many children (Larrain 1994; David and Chin 1998; Ellsberg et al. 2000; Tjaden and Thoennes 2000). Although high parity often has been assumed to be a risk factor for abuse, research among Nicaraguan women found that violence frequently begins early in a relationship, often preceding a woman's first pregnancy (Ellsberg et al. 2000). High parity, therefore, is more likely a consequence of violence, resulting from

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women's diminished ability to control the timing of sex and contraceptive use. Qualitative research has shown that in many parts of the world, the marriage vows are interpreted as granting a man the right to unconditional sexual access to his wife. Therefore, many women are afraid to refuse unwanted sex or to raise the issue of contraception for fear that their partners might respond violently (Shedlin and Hollerbach 1981; Bawah et al. 1999).

A recent review of 50 population-based studies from 36 countries indicated that between 10 percent and 60 percent of women who have ever been married or in union have experienced at least one incident of physical violence from a current or former intimate partner (Heise et al. 1999). Considerable variation exists between countries, and even among studies performed in the same country. Meaningful comparisons of prevalence estimates between and within settings are hampered by a lack of consistency in the way violence is conceptualized, measured, and reported (Koss 1993; Smith 1994; Hamby et al. 1996; Hegarty and Roberts 1998; Heise et al. 1999). Consequently, the development of methods for the measurement of violence that maximize comparability between settings is a major challenge for international research on the topic.

Methodological Issues

The Study Population

Great variation exists in the study populations used for research on domestic violence. Many studies include all women within a specific age range (frequently 15–49 or all those older than 18), whereas other studies interview only women who are currently married or who have been married at some point in their lives (see Table 1). Because both age and marital status are associated with a woman's risk of suffering abuse from her partner, the definition of eligible respondents can have a considerable impact on the prevalence estimates of abuse.

Nonresponse Bias

Nonresponse can bias findings if abused women are more or less likely than nonabused women to participate. Nonresponse occurs when the selected woman is unavailable because she has moved away and cannot be located, because she is temporarily away, or because she refuses to participate in all or part of the study. Researchers disagree as to whether victims of abuse are more or less motivated than are nonabused women to participate in a study concerning violence (Hauggard and Emery 1989).

Table 1 Study populations from recent surveys of domestic violence against women, various countries

Country (study, year)	Study population
Cambodia (Nelson and Zimmerman 1996)	Women and men aged 15–49
Canada (Johnson and Sacco 1995)	Women aged 18 and older
Chile (Larain 1994)	Women aged 22–55 married or in union for more than two years
Colombia (PROFAMILIA 1995)	Currently married women or women in union aged 15–49
Egypt (El-Zanaty et al. 1996)	Ever-married women or women in union aged 15–49
Philippines (Macro International and National Statistics Office 1994)	Women aged 15–49 with a pregnancy outcome
Uganda (Blanc et al. 1996)	Women 20–44 and their spouses or partners
Zimbabwe (Watts et al. 1998)	Women aged 18 and older

How Violence Is Defined

A further complication in the comparison of prevalence estimates is the use of inconsistent definitions of abuse. For example, some studies present figures only for violent acts occurring in the last 12 months, whereas others measure lifetime experience of violence. The use of a narrow time frame can underestimate seriously the magnitude of the problem, because many women suffer from the physical or emotional effects of violence long after it has ceased. In addition, not all studies separate different kinds of violence, so that distinguishing among acts of physical, sexual, and emotional violence or among acts of violence committed by different perpetrators may not be possible (Smith 1994).

Enhancing Disclosure

All studies of painful subjects such as violence face the challenge of how to convince people to speak openly about intimate aspects of their lives. The degree to which openness is achieved depends partly on study-design issues, such as whether questions are clearly worded and easy to understand and how many times during the interview a woman is asked about violence. Another major issue influencing disclosure is how comfortable women are made to feel during the interview. A participant's comfort level may be affected by many factors, including the sex of the interviewer, the length of the interview, whether others are present, and whether the interviewer appears to be genuinely interested in her story and willing to listen to her without making judgments.

Overreporting, or the fabrication of acts of violence that have not actually occurred, is generally felt to be encountered rarely in research on violence (Koss 1993; Smith 1994; Hamby et al. 1996; Haj-Yahia 1998). Underreporting of violence, on the other hand, is widely considered to be a much more common threat to validity.

As Smith (1994: 109) points out,

An abused woman may not reveal her victimization to an interviewer for a variety of reasons. She may feel that the subject is too personal to discuss, she may be embarrassed or ashamed, she may fear reprisal by her abuser should he find out about the interview, she may misunderstand the question, or she may think the abuse was too minor to mention. She may even have forgotten about it, particularly if it was minor and happened long ago. If the abuse was especially traumatic, she may not want or be able to recall it.

Researchers on violence, and particularly feminist researchers, have proposed a series of strategies to enhance disclosure. Two important strategies are: (1) giving the participant several opportunities to disclose her experience of violence within the course of the interview, and (2) using behaviorally specific questions rather than asking general, subjective questions such as "Have you ever been abused?" By focusing on acts rather than on subjective interpretations, respondents are not forced to identify with stigmatized categories such as "battered woman" or "rape victim." Providing multiple opportunities for disclosure allows a woman more time to think about her answers, to recall events that may have happened long ago or in different contexts, and to build up enough trust to speak about violence (Koss 1993). Another key strategy lies in the selection and training of interviewers who are skilled in developing rapport with respondents. Brush (1990: 65) argues,

The most important barrier to adequate assessments of the extent and dimensions of intimate violence through surveys is the context of the interaction between interviewer and interviewee. To elicit adequate information about the highly stigmatized, traumatic phenomenon of battering requires an infusion of trust, safety and intimacy into the interviewing relationship.

Enhancing Women's Safety

Strategies to improve the quality of data on violence must take into account concerns for the safety of both respondents and interviewers throughout the research process (Finkelhor et al. 1988; Liss and Solomon 1996; Fontes 1998; World Health Organization 1999). Disclosing her experience of violence may expose a respondent to the risk of retaliation by an abusive partner or by family members. She may also find the recollection of past events painful unless she has adequate support. Finally,

interviewing women about violence can be deeply distressing for field-workers, particularly if they themselves have experienced some form of violence. The World Health Organization (WHO) recently published guidelines for addressing ethical and safety issues in conducting research on violence. The recommendations urge researchers to undertake such studies only if they are able to ensure minimal safety standards, such as guaranteeing complete privacy during the interview, providing information and referrals to respondents, and providing special training and support for interviewers. The WHO guidelines (see box below) argue that these considerations are essential not only for ethical reasons but also that they are critical for obtaining high-quality data, primarily because of their impact on women's disclosure (World Health Organization 1999).

As more international data about violence against women have become available, two distinct research trends have emerged. Increasingly, information on violence is being included in large-scale surveys designed primarily for other purposes. For example, recent Demographic and Health Surveys and Reproductive Health Surveys have included a limited number of questions about violence in national surveys in Colombia (PRO-FAMILIA 1995), Egypt (El-Zanaty et al. 1996), Moldova (Serbanescu et al. 1998), Paraguay (CEPEP 1997), Philippines (Macro International and National Statistics Office 1994), Puerto Rico (Dávila et al. 1998), and South Africa (Macro International and South Africa Department of Health 1998). These surveys typically use aggregate "gateway" questions, such as "Have you ever been beaten by anyone since you were 15/were married? By whom?"

The other trend is represented by focused studies providing more detailed information on women's experiences of violence. Many of these studies, such as the prevalence studies in Cambodia (Nelson and Zimmerman 1996), South Africa (Jewkes et al. 1999), United Kingdom (Mooney 1993), and Zimbabwe (Watts et al. 1998) have relatively small sample sizes and cover a limited geographical region. Several national studies focusing on violence against women also have been conducted, for example, in Canada (Johnson 1996), Finland (Heiskanen and Piisspa 1998), Holland (Römkens 1997), Switzerland (Gillioz et al. 1997), and the United States (Tjaden and Thoennes 2000). The focused studies tend to gather much more information about different types of violence and perpetrators, as well as information concerning specific circumstances and women's responses to violence. They also tend to place more emphasis on the interaction between interviewers and respondents and on issues of safety. Both the World Health Organization and the Inter-

World Health Organization Guidelines, 1999

Putting Women's Safety First: Ethical and Safety Recommendations for Research on Domestic Violence Against Women

- The safety of respondents and the research team is paramount and should infuse all project decisions.
- Prevalence studies need to build upon current research experience about how to minimize the underreporting of abuse.
- Protecting confidentiality is essential to ensure both women's safety and data quality.
- All research team members should be carefully selected and receive specialized training and ongoing support.
- The study design must include a number of actions aimed at reducing any possible distress caused to the participants by the research.
- Field-workers should be trained to refer women requesting assistance to available sources of support. Where few resources exist, it may be necessary for the study to create short-term support mechanisms.
- Researchers and donors have an ethical obligation to help ensure that their findings are properly interpreted and used to advance policy and intervention development.
- Violence questions should be incorporated into surveys designed for other purposes only when ethical and methodological requirements can be met.

national Network of Clinical Epidemiology are engaged in multicountry initiatives to study violence against women. The WHO study includes eight countries with two sites in each one (World Health Organization 1997). These efforts are important, not only because they contribute to the generation of data that can be compared across settings but also because they have incorporated into the study designs a rigorous set of procedures to safeguard ethical and safety standards that have been adapted for implementation in each site.

Many potential advantages are gained from including questions about violence in national surveys designed primarily for other purposes. In many cases, national statistical bureaus conduct these studies and thereby give the results the legitimacy of "official statistics." This legitimacy can be useful for the purposes of advocacy. Nationally representative data are helpful for planning local programs, and also permit in-depth analysis of variation among regions. Moreover, the large data sets generated by these studies, which include many reproductive and child-health outcomes, can be used to deepen understanding of the risk factors and health consequences of violence against women.

This strategy also has potential drawbacks, however. In general, estimates of the prevalence of violence have been higher in the focused studies than in the surveys designed primarily for other purposes (Heise et al. 1999). One explanation for this discrepancy may be that the focused studies are able to produce more accurate preva-

lence estimates as a result of the methods they use for enhancing disclosure. Therefore, the risk of significant underreporting is one potential disadvantage of researching violence by means of multipurpose studies. Underreporting of violence dilutes the associations between potential risk factors and health outcomes, leading to false-negative results. Underestimating the dimensions of violence may also result in relegating violence-intervention programs to a lower priority than they deserve in the allocation of resources. Moreover, most of the studies designed primarily for other purposes do not include any special procedures to ensure respondents' and interviewers' safety. To our knowledge, no follow-up studies exist that would shed light on whether women have experienced negative consequences as a result of participating in the research.

One way to assess whether large-scale demographic surveys do, in fact, yield lower estimates of the prevalence of violence than do focused studies is through the comparison of multiple sources of data from one setting. This study compares the results of three population-based studies of domestic violence (one national survey and two smaller surveys) carried out in Nicaragua between 1995 and 1998. Its aim is twofold: (1) to examine alternative explanations for differences in the reported estimates of domestic violence among studies, and (2) to produce evidence to help guide future decisionmaking regarding the use of large-scale demographic surveys as vehicles for collecting prevalence data on domestic violence.

Methods

In 1995, the first Nicaraguan population-based study on violence was conducted in León, the country's second-largest city, with 200,000 inhabitants. Researchers from the National Autonomous University of Nicaragua at León (UNAN-León) and Umeå University, Sweden, carried out the study in collaboration with the Nicaraguan Network of Women against Violence. The aim of the study was to measure the prevalence and characteristics of physical and sexual violence directed by intimate partners against women, as well as women's response to abuse (Ellsberg et al. 1999a and 2000). A random sample of 488 women aged 15–49 was interviewed, including 360 ever-married women.

The second study was carried out in 1997 in Managua, Nicaragua's capital. It was conducted by the Inter-American Development Bank (IDB), together with the International Foundation for Global Challenges (FIDEG), a national nongovernmental organization specializing in macroeconomic research with a focus on gender. The purpose of the study was to measure the impact of domestic violence on women's earnings and use of health services (Morrison and Orlando 1999). A random sample of 378 ever-married women representing the municipality of Managua were interviewed regarding household and economic issues and also about experiences of physical, sexual, and emotional abuse they had received from an intimate partner.

The third study was a Demographic and Health Survey (DHS) conducted using a nationally representative sample of 8,507 ever-married women (Rosales et al. 1999). The survey was carried out in 1998 by the Nicaraguan Institute for Statistics and Census Information (INEC), with technical assistance from Macro International. The instrument included sections on women's reproductive health, including use of contraceptives and detailed birth histories, and questions on child health and nutrition. In addition, a special module on violence was included, called "Household Relations." This module presented questions on women's access to financial and material resources, participation in decisionmaking, and experiences of physical, sexual, and emotional abuse from intimate partners and others.¹

The Questionnaire

All three studies used similar methods for measuring experiences of violence. The specific questions used are presented in Table 2. The Conflict Tactics Scale (CTS) and the Revised Conflict Tactics Scale (CTS2) were used in the León and Managua studies, respectively, with

some modifications (Straus and Gelles 1979; Straus et al. 1996).²

The DHS used a similar approach to the CTS in that it included multiple behavior-specific questions, ranked according to severity. The specific items and the introduction to the questions were substantially modified, however, based on previous research experience in Nicaragua and elsewhere (Rosales et al. 1999).

Both the León survey and the DHS introduced the section on violence with a global question asking women to recall abuse they had received from anyone in their lifetime, as a way of introducing the subject and of orienting the respondents to subsequent questions. In the León and Managua studies, questions on violence were asked shortly after those about basic demographic information, whereas the violence module of the DHS was placed at the end of the interview schedule, after sections on family planning, employment, reproductive histories, child health, and nutrition.

Definitions of Violence

Prevalence of physical violence recorded in all three studies is calculated here as the proportion of ever-married women who reported experiencing one or more acts of physical violence from an intimate partner. Estimates were calculated for current violence (within 12 months prior to the interview) and for lifetime prevalence.³ Pushing, slapping, and throwing objects at the respondent are classified as acts of moderate violence, whereas kicking or hitting the respondent with a fist or with an object, beating up, and threatening or using a knife or gun are classified as acts of severe violence. A response concerning sexual violence was classified as positive if a woman reported having ever been coerced by a partner or ex-partner to perform a sexual act against her will by means of threats or physical force.

Sampling Methods

In all three studies, women aged 15–49 who had ever been married or lived with a male partner were eligible to participate (see Table 3). Never-married women were also interviewed in the León study, but these cases were excluded from the present analysis. Random selection procedures were used in each study to select one woman per household to be interviewed, in order to enhance confidentiality.⁴ Detailed information on sampling procedures is provided elsewhere (Ellsberg et al. 1999b; Morrison and Orlando 1999; Rosales et al. 1999). The León and Managua studies used self-weighting samples, whereas in the DHS, analysis was weighted to account for over-

Table 2 Questions about domestic violence against women asked of survey respondents in three studies, Nicaragua

Section of questionnaire and time frame	León (1995)	Managua (1997)	DHS (1998–99)
General introduction	Now I am going to ask you some questions regarding different kinds of violence that many of us as women have experienced in some way or another. We know that these are difficult subjects to talk about; however, sometimes talking about them can be a first step for making changes in our lives.	No matter how well a couple gets along, there are times when they disagree, get annoyed with each other, want different things from each other, or just have spats or fights because they are in a bad mood, are tired, or for some other reason. Couples also have many different ways of trying to settle their differences.	Now I would like to ask you questions regarding some aspects of relationships among couples. I know that these questions are very personal, but I would like you to answer sincerely. I would also like to assure you that your responses are completely confidential. No one else will know what we are about to discuss. When two people marry or live together they usually share good and bad times.
Aggregate global question	Have you ever in your life experienced blows, humiliations, sexual abuse, or threats from your boyfriend, partner, parents, or any other person that you know? Who was it? Was the violence emotional, sexual, or physical? (Mark all that apply.)	None	Since you were 15 years old, have you been beaten or mistreated physically by any person? Who beat you or mistreated you physically?
Specific introduction	Now if you will allow me, I am going to ask you some questions about your relationship with your (ex) partner. During the last year, in a moment of conflict or discussion with him, how often did he do the following:	This is a list of things that might happen when you have differences. Please tell me how many times your partner did them to you in the past year.	Now, if you will permit me, I'm going to ask you some questions about your relationship with your partner. During the past year, how many times did your (ex) husband/partner do the following to you:
Emotional violence	<ul style="list-style-type: none"> • Yell at or insult you? • Do something to humiliate you? • Threaten to hit you? 	<ul style="list-style-type: none"> • Insult or swear at you? • Destroy something belonging to you? • Do something to spite you? 	<ul style="list-style-type: none"> • Say or do something to humiliate you? • Threaten to hurt you or someone close to you?
Moderate physical violence	<ul style="list-style-type: none"> • Throw something at you? • Push or shove you? • Slap you? 	<ul style="list-style-type: none"> • Grab you? • Push or shove you? • Slap you? • Twist your arm or hair? • Throw something at you that could hurt? 	<ul style="list-style-type: none"> • Push or shove you, or throw something at you? • Slap you or twist your arm?
Severe physical violence	<ul style="list-style-type: none"> • Kick, bite or hit you with his fist? • Beat you up? • Threaten you with a knife or gun? • Use a knife or gun on you? 	<ul style="list-style-type: none"> • Choke you? • Slam you against a wall? • Punch or hit you with something that could hurt? • Beat you up? • Burn or scald you on purpose? • Kick you? 	<ul style="list-style-type: none"> • Hit you with his fist or something that could hurt you? • Kick or drag you? • Try to choke you or burn you on purpose? • Threaten to or use a machete, gun, or other weapon on you?
Sexual violence	<ul style="list-style-type: none"> • Force you to have sex or do something sexual against your will? 	<ul style="list-style-type: none"> • Insist on having sex when you did not want to (but did not use physical force)? • Use force (like hitting you, holding you down, or using a weapon) to make you have sex? • Use threats to make you have sex? 	<ul style="list-style-type: none"> • Physically force you to have sex against your will? • Threaten or scare you into having sex when you didn't want to? • Force you to perform a sexual act against your will?
Time frame	Lifetime 12 months	Lifetime 12 months	Lifetime 12 months

DHS = Demographic and Health Survey.

sampling in some regions and to adjust for respondents living in households with more than one eligible woman.

Safety Measures

In all three studies, specific measures were taken to protect the safety of the respondents and the interviewers,

as shown in Table 3. Interviewers for all three studies received some special training in asking questions concerning domestic violence, although of varied length and depth. Other measures regarding privacy, referrals, and information provided to respondents, as well as support for interviewers, were included in the research plans of all three studies, but were implemented to different degrees.

Table 3 Summary of characteristics of domestic violence studies, Nicaragua

Characteristic	León	Managua	DHS
Year	1995	1997	1998–99
Study population	All women aged 15–49	Ever-married women aged 15–49	Ever-married women aged 15–49
Research institution	UNAN-León/ Umeå University	FIDEG/IDB	INEC/Macro International
Sample size	488 (360 ever-married)	378	8,507
Time frame	Lifetime/ 12 months	Lifetime/ 12 months	Lifetime/ 12 months
Scope	León municipality	Managua municipality	National
Response rate (percent)	86	88	>90
Refusals (percent)	0	8	<1
Number of interviewers	7 women	8 women	50 women
Data-quality control	10 percent repeat interviews, supervision, data-quality tables	Supervision, data-quality tables	Supervision, data-quality tables
Safety measures			
Referrals for support	Yes	Yes	No
Educational materials	Yes	Yes	Limited*
Emotional backup for field-workers	Yes	Yes	No
One woman interviewed about violence per household	Yes	Yes	Yes
Interviewers received special training in asking questions about violence	1 week	3 days	1 day
Advisory group	Yes	Yes	Yes

UNAN-León = National Autonomous University of Nicaragua at León. FIDEG/IDB = International Foundation for Global Challenges/Interamerican Development Bank. INEC = Nicaraguan Institute for Statistics and Census Information.

*Educational materials were provided to the study by the National Organization of Women against Violence (a member of the technical advisory board). The field supervisors controlled distribution of the materials, however, and interviewers were instructed to offer them only to respondents who specifically requested additional information.

Interviewer Debriefing

Once the fieldwork was completed in each of the studies, focus-group discussions were held with interviewers to evaluate the implementation of fieldwork. All interviewers participated in each of the León and Managua discussions, and in the DHS, three focus-group discussions were conducted with seven female interviewers, eight female supervisors, and five members of the senior staff of INEC.⁵ Two primary questions were covered in all of the discussions: How successful were efforts to ensure the safety of informants and interviewers and what issues might have affected the reliability of the data?

Data Analysis

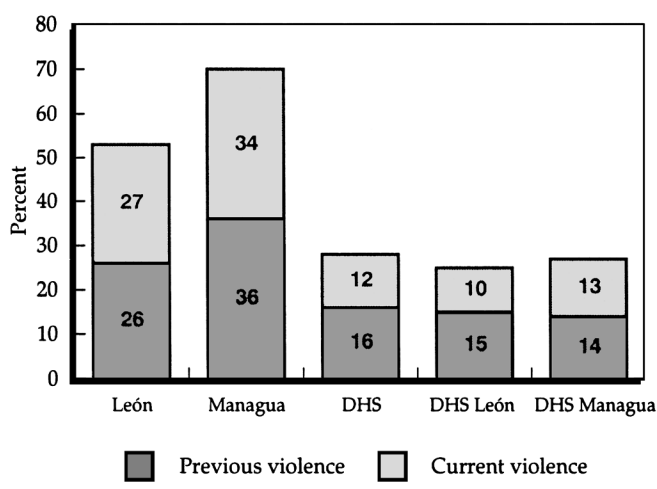
The three data sets were compared with regard to the characteristics and severity of violence and whether violence had taken place within the last 12 months or previously. Sensitivity and specificity of the general questions for capturing physical abuse from intimate partners were calculated for the León and DHS data, using the detailed instrument as a “gold standard.”⁶ Multivariate logistic regression analysis was performed on each data set separately to assess the effect of confounding on the risk factors for violence. Thereafter, all three data sets were merged, and pooled analysis was performed to assess the combined effect of confounding variables on prevalence estimates. Additional analysis was performed on the DHS data set to evaluate effects on prevalence of interviewer bias and of the presence of others during the interview. Data were analyzed using SPSS 9.0 for logistic regression and Chi-square tests. Significance was tested by means of 95 percent confidence intervals and p-values of <0.05.

All focus-group discussions were taped and transcribed verbatim. The material was coded according to predetermined themes and according to new themes emerging from the data. These themes were combined into broader categories.⁷ The material was reorganized and analyzed according to the broader categories using *OpenCode* (Epidemiology 1997). Many of the issues resulting from the focus-group discussions (for example, regarding privacy and disclosure) were used in planning the comparative analysis of the three data sets.

Results

Of 360 ever-married women interviewed in León, 188 (52 percent) reported having experienced one or more acts of physical violence on the part of a current or former intimate partner. Moreover, 27 percent of women reported experiencing violence within the last year. In Managua, lifetime prevalence of physical abuse from a partner was estimated at 69 percent, with 33 percent of women reporting violence in the last year. The DHS study found an overall prevalence of physical violence from a partner of 28 percent, with 12 percent of women reporting violence in the last year (see Figure 1). In the DHS data, some variation was found in the prevalence of domestic abuse by geographical region: The prevalence of violence in León was 25 percent and in Managua, it was estimated at 28 percent. In analysis stratified by urban–rural residence, however, no statistically significant differences between the two regions were found with regard to prevalence of domestic violence.

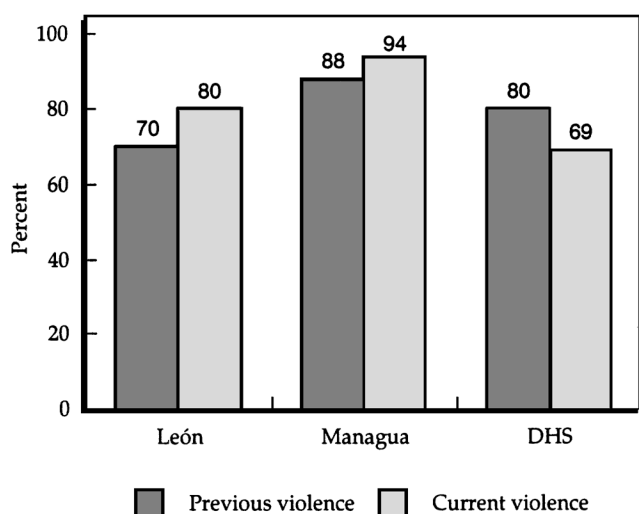
Figure 1 Lifetime prevalence of physical abuse from a former or current partner among ever-married women, Nicaragua



Thereafter, comparative analysis was performed on the DHS sample as a whole.

With regard to sexual coercion, 22 percent of women in León and 29 percent of women in Managua reported having ever been forced by a partner to have sex. According to the DHS, 10 percent of women reported being forced by a partner to have sex. In both the León and Managua studies, no significant difference was found in the proportion of severe violence reported among women who were currently suffering abuse and those who had experienced abuse more than 12 months prior to the interview (see Figure 2). Women surveyed by the DHS reported significantly less severe violence

Figure 2 Percentage of domestic violence classified as severe, according to whether the last incident of violence occurred less than 12 months prior to the survey (current violence) or earlier (previous violence), Nicaragua



($p < 0.001$) during the previous 12 months, compared with overall reports of acts of earlier severe violence.

Although the overall proportion of women who had experienced domestic violence during pregnancy was statistically significantly higher in the León study (16 percent) compared with the DHS (10 percent), the proportion of abused women reporting violence during pregnancy was identical in the two studies (31 percent). Likewise, no significant differences were found between the León and DHS studies with regard to the proportion of abused women who sought outside help at some point, or who reported that children were usually present during the violence, as shown in Figure 3.

In all three studies, the women's age structure was similar, as shown in Table 4. The León and Managua samples had a higher proportion of educated women than did the national standard; these samples are comparable to the corresponding regions within the DHS, however. Both of the regional studies included a greater proportion of urban women than did the DHS sample because they included only the urban centers, whereas the DHS regional strata included surrounding rural areas as well. For this reason, the León and Managua study populations are not directly comparable to the corresponding strata of the DHS.

The León survey and the DHS show that the risk of violence was higher for women living in urban areas (see Table 5; all women interviewed for the Managua survey were urban residents). Moreover, in all three studies, high parity was associated with increased risk of domestic violence. In the León and DHS studies, younger

Figure 3 Percentage of women who reported experiencing violence during pregnancy, who asked for help when abused, and who reported that children witnessed the violence, León and DHS, Nicaragua

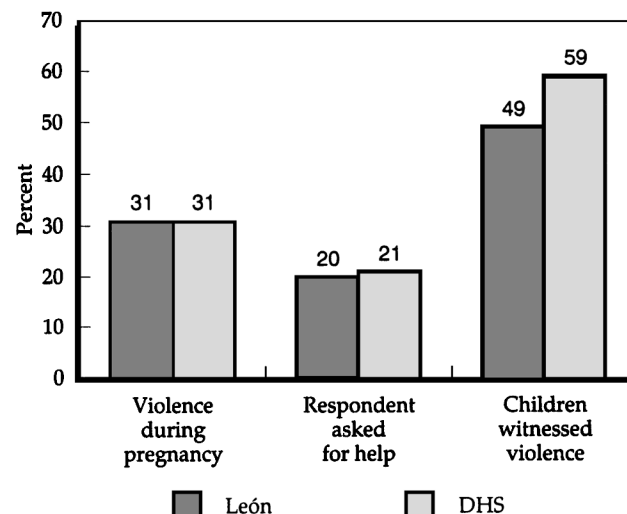


Table 4 Percentage distribution of respondents, by selected characteristics, according to study, Nicaragua

Characteristic	León (1995)	Managua (1997)	DHS León (1998)	DHS Managua (1998)	DHS Total (1998)
Age					
15–24	26	17	25	22	25
25–34	39	38	35	39	38
35–49	35	45	40	39	37
Education					
None	9	8	16	8	19
Primary	45	40	44	36	44
Secondary	46	52	40	56	38
Residence					
Urban	82	100	56	90	62
Rural	18	0	44	10	38
Parity					
0–1	25	21	27	29	24
2–3	39	42	35	39	35
≥ 4	36	37	38	33	40
Marital status					
Married/in union	78	79	80	75	79
Separated/widowed	23	21	20	25	21
(N)	(360)	(378)	(691)	(2,595)	(8,507)

women were found to be at higher risk of violence, and in the DHS, a protective effect was found for more education. Pooled analysis of the three data sets revealed that the differences between the three studies with regard to the overall risk of violence remained significant even after adjusting for potential confounders such as residence, age, parity, and education.

The León and DHS studies obtained different prevalence estimates derived from the initial general question on abuse compared with the multiple-question instru-

ments. Using the general measure, 48 percent of women in León reported being physically abused by a partner, a proportion fairly close to the estimates obtained from the specific questions about abusive behavior (52 percent).

The difference in the prevalence-estimate findings was much greater in the DHS study, where only half as many women reported experiencing violence in response to the general question (14 percent) as in response to the detailed questions (28 percent). If the multiple-question instruments are used as a gold standard, the sensitivity of the general question is estimated at 88 percent in the León study and 46 percent in the DHS, whereas specificity is estimated to be 94 percent and 98 percent, respectively.

In the DHS, only 23 percent of women currently experiencing moderate abuse disclosed violence in the aggregate measure. The proportion was higher (50 percent) among women currently experiencing severe violence. Both of these figures are low compared with those from the León study, however, where 68 percent of women currently experiencing moderate violence and 96 percent of women currently experiencing severe abuse also disclosed experience of violence in the general question.

According to DHS interviewers' reports recorded in the questionnaire, at least one person other than the respondent was present during 35 percent of the interviews and more than one person was present in 9 percent of interviews, as shown in Table 6. The respondent's husband was present in 4 percent of interviews. Within the DHS, a wide range (5 percent to 75 percent) was found in interviewers' reports concerning the proportion of in-

Table 5 Logistic regression models showing crude and adjusted odds ratios for associations of background characteristics with women's experience of domestic violence, León, Managua, and DHS studies, Nicaragua

Characteristic*	León		Managua		DHS	
	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)
Residence						
Rural (r)	1.0	1.0	na	na	1.0	1.0
Urban	1.6 (0.9–2.8)	2.1 (1.1–3.8)	na	na	1.2 (1.1–1.3)	1.4 (1.3–1.6)
Economic status						
Not poor (r)	1.0	1.0	na	na	na	na
Poor	1.9 (1.1–3.2)	1.8 (1.0–3.2)	na	na	na	na
Age						
15–24 (r)	1.0	1.0	1.0	1.0	1.0	1.0
25–34	1.2 (0.7–2.0)	0.9 (0.5–1.7)	0.8 (0.4–1.4)	0.5 (0.3–1.0)	1.2 (1.1–1.4)	0.9 (0.7–1.0)
35–49	1.0 (0.6–1.7)	0.7 (0.3–1.4)	1.1 (0.6–2.0)	0.6 (0.3–1.3)	1.4 (1.2–1.6)	0.8 (0.6–0.9)
Parity						
0–1 (r)	1.0	1.0	1.0	1.0	1.0	1.0
2–3	1.4 (0.8–2.4)	1.3 (0.7–2.4)	1.5 (0.9–2.7)	1.7 (0.9–3.1)	1.5 (1.3–1.8)	1.6 (0.1–1.9)
≥ 4	2.8 (1.6–4.8)	2.2 (1.2–4.1)	2.7 (1.5–4.9)	3.1 (1.5–6.3)	2.3 (2.0–2.6)	2.6 (2.2–3.0)
Education						
None (r)	1.0	1.0	1.0	1.0	1.0	1.0
Primary	1.7 (0.8–3.8)	1.6 (0.7–4.0)	0.9 (0.4–2.4)	1.1 (0.4–2.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)
Secondary	1.4 (0.7–3.0)	1.7 (0.6–4.5)	0.7 (0.3–1.5)	1.0 (0.4–2.6)	0.7 (0.6–0.8)	0.7 (0.6–0.8)

(r) = Reference category. na = Not available. CI = Confidence interval.
*All variables are included.

interviews in which witnesses were present. Among women interviewed in the presence of their husbands or more than one person, reports of domestic violence were statistically significantly fewer than among women interviewed without witnesses.

Results of Focus-group Discussions

In all three studies, interviewers felt that there were more women who had experienced abuse than were willing to speak about it. They noted that many women “said no with their mouths, but yes with their eyes.” The most important issues affecting disclosure are described below.

The Context of the Interview

For all three studies, interviewers found obtaining privacy difficult, particularly in households where the entire family lived in one or two rooms. Often, family members were curious or suspicious and would enter the room unexpectedly when the interview was being conducted or hover nearby. One interviewer from the DHS commented,

His mother and sisters kept passing by and would peek in the doorway to see what we were talking about, so we would have to speak really softly . . . and the girl said to me, “Ay, don’t ask me anything in front of them.”

On another occasion, a DHS interviewer discovered that the respondent’s husband had entered the room behind her and was making menacing gestures to his wife during the interview. Women were often visibly frightened of their spouses. On a few occasions, husbands entered the room and abused their wives verbally during

the interview. Yet often these women did not disclose that they had experienced physical violence. Sometimes, women would deny being abused initially, and later in the interview as they established rapport with the interviewers, they would describe their situation.

In [answer to] the first question, they would say that he didn’t beat them, but when we got to the other questions, then they would say, yes, sometimes he beats me and kicks me or uses a gun, or whatever. (DHS interviewer)

They would say that they had never told anyone before about their situation. But then we got to be so close during the interview that she would ask me, “What do you think I should do?” Sometimes we couldn’t get off the subject. (DHS interviewer)

In León and Managua, interviewers dealt with interruptions by agreeing with the respondent in advance to talk about other subjects, such as breastfeeding or vaccination, if someone entered the room. If privacy could not be maintained, respondents were encouraged to reschedule their interviews for a different time or place. The privacy requirement was strictly enforced. Two León field-workers were dismissed when they were found to have conducted an interview in the presence of a respondent’s family member. All 40 interviews conducted previously by these two field-workers were repeated in order to verify results. None of the respondents who were interviewed twice reported less violence in the second than in the first interview, although a few disclosed additional violent events during the second interview.

In the DHS, obtaining privacy was made especially difficult because of respondents’ geographical dispersion and time pressures. An additional constraint was that the questions concerning violence were placed at the end of a lengthy interview (generally lasting more than one hour), after which the interviewer’s supervisor took weight and height measurements of women and children in the household. Interviewers often felt pressed by respondents’ impatient family members and by the study supervisors to wrap up the interviews.

Support for Respondents

In both the León and Managua studies, interviewers had the option of referring for psychological or medical support women who were experiencing distress or who they considered to be at risk for violence in the future. A network of local referral services had been developed prior to the fieldwork, and communication was maintained

Table 6 Percentage of interviews conducted with one or more witnesses present, percentage of women surveyed who reported experiencing domestic abuse when witness(es) were present at interview and when interviewed without witnesses, by who was present at interview, Nicaragua DHS

Present at interview	Interviews with witness(es) present	Reported violence when witness(es) present at interview	Reported violence when interviewed with no witnesses present
Children <10	27.6	29.0	27.5
Other women	10.5	26.7	28.8
Other men	3.2	25.1	28.7
Husband	4.5	24.1*	28.7
One person only	26.3	29.2	28.9
Two or more people	8.7	24.0**	28.9

*Significant at $p < 0.05$; ** $p < 0.01$. (N) = 8,507.
Note: Comparison made with one-sided Chi² test.

with these networks throughout the fieldwork. Educational materials were offered to all women participating in these studies. These materials were helpful to the respondents, but also to the interviewers who might otherwise have felt overwhelmed by their inability to help respondents in need. In the DHS, although educational materials and limited referral opportunities were available, neither was fully utilized.

Support for Interviewers

In all three studies, interviewers found listening to women's stories of violence to be deeply distressing. They expressed their frustration at being unable to help the women they interviewed. In some cases, the field-workers left respondents' homes aware that the women's husbands were suspicious and hostile and that the women might face reprisals for participating in the studies as soon as the interviewers left.

We spent days thinking about that poor girl and how we left her, without being able to help her; all we did was give her the pamphlet and leave. The interviewers were very upset, because they would think about their daughters, and that tomorrow something could happen to them and there would be no one to help them. (DHS supervisor)

In anticipation of this difficulty, both the León and Managua studies implemented specific measures aimed at offsetting the effects of interviewer "burnout." Weekly meetings were held with interviewers to discuss not only technical issues, but also their personal experiences in the field. Efforts were made to create a nurturing environment where women felt comfortable and safe discussing their feelings and their own experiences of violence. Although several of the León and Managua interviewers mentioned their difficulty in listening to respondents' stories, they also recognized that participating in the study was the most significant experience of their lives.

What helped me the most was working on this study: It helped me to be who I am today . . . because I have been able to help others. I felt that I could help them because I had lived through it myself, and I didn't like it. I wouldn't like for anyone, anywhere to live through what I have lived through in my life, ever. (León interviewer)

Another interviewer who had never before discussed her experiences of abuse said,

[When I joined this study] I felt that I had finally found someone I could tell everything to, someone with whom I could share my burden,

because it's horrible to feel so alone. Now I feel that a weight has been taken off me. . . . I feel relieved. (León interviewer)

The Demographic and Health Survey was less able to address such concerns, partly because of time pressure, and also because the interviewers were spread out over large geographical areas, so that providing them with emotional support was difficult. Moreover, members of the DHS core staff acknowledged in the focus-group discussion that they had had no prior experience with these sorts of questions, and in hindsight, they felt that they had underestimated the importance of providing support to the interviewers. Supervisors were not trained in such support, and the only structured opportunity for interviewers to discuss their experiences relating to the administration of the module on violence was during the occasional meetings held during the field-workers' visits to Managua to address administrative concerns. Prior to the focus-group discussions with field-workers, DHS staff had no awareness that the experience of asking these questions had affected interviewers negatively.

In the focus-group discussions, however, the DHS interviewers and supervisors told stories similar to those of the León and Managua field-workers, with the main difference being that they had been unable to discuss their experiences within the context of the study. Several women reported being so deeply disturbed by respondents' stories of violence that they would be distracted for hours or even days after the interviews took place. In one case, an interviewer described being so distressed that shortly after she had conducted the interview, she tried to rescue a woman who was being beaten by her husband on the street. Another field-worker acknowledged that she had lived through similar experiences herself, and therefore found listening to stories of abuse particularly painful. One field-worker admitted that she had resigned from the study because she was unable to withstand the stress of the questions about violence.

When I heard stories about women being beaten and tied up, I would leave them feeling desperate. . . . I would be a wreck, and my supervisor would tell me, "Get hold of yourself; you cry about every little thing." But how could I control myself? I couldn't stand it. . . . I would try, but sometimes it was impossible, and I would burst into tears during the next interview. (DHS interviewer)

An interviewer from the Managua study summarized the intensity of the combined pressures on respondents and interviewers in the following story:

[The experience] that most affected me was with a girl my age, maybe 22 years old. . . . She told me all about how her husband beat her while she was washing clothes in the back patio. Her mother-in-law would spy on her and tell her son things so that he would punish her. She was very afraid, and her voice trembled as she spoke, but she really wanted to tell me about her tragedy. She kept looking over to where her mother-in-law was watching us. She asked me for help and I told her about the Women's Police Station. When her mother-in-law got up to go to the latrine, I quickly gave her a copy of the pamphlet and she hid it. She thanked me when I left, and I started crying in the street, because I couldn't stand to see such a young girl being so mistreated not only by her husband but by her mother-in-law also. (Managua interviewer)

Discussion

This comparison of three population-based studies in Nicaragua reveals that the estimated prevalence of violence is significantly higher in both the León and the Managua studies than in the DHS. We conclude that the main differences are related to the scope and setting of the studies and the preparation and support of interviewers.

Definitions of Study Population and Violence

All three studies interviewed random samples of women of identical age groups and marital status. A similar questionnaire was used, relying on multiple questions about specific acts of violence. Moreover, the first author of this study participated in the design of all three studies, providing continuity.

Sampling Bias

The three samples exhibited significant differences with regard to several demographic characteristics of respondents. The associations between these factors and the risks of violence were maintained in each of the data sets, however, and pooled multivariate analysis showed that the differences among the three studies in the prevalence of violence remained large, even after adjusting for potential confounders. Therefore, sampling bias alone does not appear to account for the differences in the prevalence estimates among the three studies.

A significantly higher prevalence of violence was

found in Managua compared with León. We do not know to what degree this reflects a true difference or whether it is an artifact of methodology. According to statistics from the National Police Force, the rates of reported violent crime and of wife abuse are higher in Managua than in León (Policía Nacional 1997).

Nonresponse

In all three studies, the response rate was greater than 85 percent; refusals were extremely low in all but the Managua study. The lowest response rate was found in León, because the household information used to select eligible respondents was more than a year old, and a large number of women had migrated from the area and could not be located. Anecdotal evidence from family members indicated that some of these women had left the region fleeing violent partners. If violence were related to out-migration and therefore a contributing factor to nonresponse, this bias would effect an underestimation of violence. Nonresponse is not likely, therefore, to account for the higher prevalence of abuse found in the León study compared with the DHS. Nonresponse could explain part of the difference between the estimates for León and Managua, however.

Disclosure

Overreporting of abuse was not indicated as a factor in any of the studies. In the León study, repeat interviews performed with a 10 percent sample of respondents revealed no evidence of fabrication. Respondents were asked to provide detailed accounts of violent relationships, and in both the León and Managua studies they were also asked to provide the month and year of their first and last experiences of violence. They probably could not have provided as persuasive and consistent descriptions of the incidents as they did had these events not occurred. This issue was addressed in the focus-group discussions in León and the DHS; interviewers and supervisors agreed that respondents reporting violence gave credible accounts of abuse.

In both the León study and the DHS, higher prevalence estimates were obtained with the use of multiple, behaviorally specific questions than with broader, aggregate questions. Moderate violence was more likely than severe violence to be misclassified using the general questions. This finding provides support for the view, advanced by many researchers, that general, global questions are less effective in eliciting disclosure of violence (Hamby et al. 1996). Relatively higher disclosure of domestic abuse was obtained by the general

question in the León study compared with that of the DHS, where the prevalence estimate nearly doubled with the addition of specific questions about violent behavior, possibly because the initial León question was broader than the DHS question, and because it concerned any perpetrator and any type of violence. Women in the León study had been informed at the outset that the survey would deal with domestic violence, so they may have been better prepared to discuss these issues than were the DHS respondents for whom the questions on violence represented a major departure from the subjects in previous sections. Providing respondents with multiple opportunities to disclose their histories and using questions about specific abusive behavior may have enabled women to remember events that they might not have recalled when asked only one general question. This finding suggests that national surveys designed primarily for other purposes that rely on a single question to measure abuse are likely to underestimate the prevalence of violence.

Because no other major sources of variation or bias were found among the studies, underreporting in the DHS is likely the main source of variation. Two plausible explanations may be given for women's unwillingness to describe their experiences of domestic violence. First, individual interviewers may lack skill in establishing rapport with respondents. For example, interviewers differed widely in their ability to obtain privacy for the conduct of their interviews. Because the presence of others affects disclosure, overall prevalence estimates could be affected by the skill of each interviewer in this regard.

Second, disclosure was affected by a combination of organizational and methodological factors that are independent of the skill of individual interviewers. The León and Managua studies covered a geographically limited, primarily urban area and focused specifically on women's experiences of domestic violence. In these studies, safety measures were emphasized, including privacy of interviews, support and referrals for respondents, and interviewer training and support. In contrast, the DHS involved a national sample that included some isolated rural regions. The DHS addressed many issues pertaining to reproductive and child health, including contraceptive and pregnancy histories, breastfeeding, child nutrition, child mortality, and knowledge of sexually transmitted disease. As noted above, the violence module of the DHS was placed at the end of a lengthy questionnaire and directly before children and supervisors entered the room to take anthropometric measurements. During data collection, specific safety concerns raised by the violence module were given little attention. In many cases, other persons, sometimes even the

husbands of respondents, were present during some or all of the interview. How much any one of these factors contributed to underreporting cannot be estimated from available information, but their combined effect may have been considerable.

The comparison of the prevalence of severe domestic violence as reported in the three studies suggests that women who were currently experiencing such abuse were less likely to report it in the DHS. Because security measures in this study were minimal, many women living with abusers may not have felt safe enough to disclose their situation for fear of reprisals.

Our findings indicate that the study of prevalence of violence is highly sensitive to a number of methodological factors and that underreporting is a major threat to validity. Focused studies are more likely to yield more accurate prevalence estimates of violence than are surveys designed primarily for other purposes. The qualitative data suggest that the most important factors influencing disclosure are adequate training and support of interviewers that include such safety measures as guaranteed privacy during interviews.

Policy Implications

The Nicaraguan DHS placed a relatively strong emphasis on safety and ethical issues in the preparation of the violence module, particularly in comparison with similar studies performed in other countries, due, at least in part, to a unique set of circumstances that resulted in the participation of donors, government agencies, and nongovernmental organizations in the development of the survey. Nicaragua has an active network of more than one hundred women's centers throughout the country that provide psychological and legal services for battered women, and that produce national public awareness campaigns concerning domestic violence. Although the results of the León study had been extensively publicized in Nicaragua already, women's health advocates, international donor agencies, and the ministries of health and women's affairs agreed that including questions about domestic violence in the DHS could increase public awareness and government commitment to the issue. A consensus was reached among all stakeholders on the need to gather data in a way that did not jeopardize women's safety. Specific safety measures were included in the project documents, and donors provided additional support for the violence module, including technical assistance. The questionnaire was developed with the support of international experts in domestic violence research and with that of the local advisory board. Close

coordination with the antiviolence network was maintained throughout the survey.

Despite the best intentions of the researchers, as data collection progressed and field staff were dispersed throughout the country, the specific safety recommendations originally planned became difficult to implement. Faced with budgetary constraints and pressure to complete data collection before the start of the rainy season, field supervisors were reluctant to slow down the process in order to facilitate support for interviewers and additional visits to respondents to guarantee privacy for interviews. Moreover, although the staff of INEC had had extensive experience in conducting large-scale surveys, they had had no prior experience in collecting data on subjects of this nature. During the focus-group discussion, several members of the core team admitted that they had not been prepared to deal with the special demands placed on them by the violence module.

The experience of the Nicaraguan DHS exemplifies the difficulty of collecting data about domestic violence in large-scale general surveys. Further research is required to assess the risks and benefits of using multi-purpose surveys for collecting this sort of information. The measures used in Nicaragua to enhance disclosure and ensure women's safety may not be relevant in all settings. Currently, a number of specialized studies are being conducted concerning domestic violence. They may provide important insights into how best to collect reliable and ethically sound data in diverse cultures. The findings of this study indicate that researchers and policymakers should proceed with caution when considering including questions about domestic violence in surveys designed for other purposes.

Notes

- 1 The first author of this article (ME) was principal researcher in the León study and technical advisor to the FIDEG-IDB study and the Nicaraguan Demographic and Health Survey. SA was the principal researcher from FIDEG for the Managua study. AW and RP collaborated in the León study, and LH collaborated in the design of the DHS violence module.
- 2 The León study used the items from the physical aggression subscale of the CTS. The introduction of the section was modified, however, so that instead of presenting the questions in terms of "how couples resolve conflicts," women were told specifically that the questions referred to women's experiences of violence, which were framed as a common occurrence in many women's lives. In the Managua study, the CTS2 was used, although items were placed in ascending order of severity, instead of randomly, in order to facilitate comprehension. In addition, three items were removed after piloting because they were considered by fieldworkers and respondents to be culturally inappropriate ("your

partner accused you of being a lousy lover," "your partner made you have sex without a condom," and "your partner used force to make you have oral or anal sex").

- 3 In their presentation of the Managua data, Morrison and Orlando included only current violence in their prevalence calculations, and frequent emotional violence was included with physical violence (Morrison and Orlando 1999). Here, the data have been recalculated to correspond to the definitions used in the León and DHS studies.
- 4 The DHS interview was conducted with all women aged 15–49 in each household. An additional procedure was used to select one woman at random per household to respond to the violence module. No one else in the household was informed about the additional questions.
- 5 The first author of this article conducted the focus-group discussions for León and the DHS, and SA conducted those of the Managua group.
- 6 Sensitivity refers to the proportion of abused women (as identified through the detailed instruments) who disclose physical violence from their intimate partners in the general question, whereas specificity refers to the proportion of women who report domestic violence in the first question that is not confirmed in the detailed instrument. Although a true "gold standard" cannot be determined in this case, current research on violence indicates that detailed instruments provide a more accurate estimate than do general questions.
- 7 Coding and analysis of focus-group results were performed by the first author, with the participation of the other authors in the interpretation of results.

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