ARTICLE

Screening for Intimate Partner Violence Using an Audiotape Questionnaire

A Randomized Clinical Trial in a Pediatric Emergency Department

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Objective: To compare women's acceptability ratings of 2 different intimate partner violence screening methods, an audiotape questionnaire and a written questionnaire, in a pediatric emergency department.

Design: Randomized clinical trial.

Setting: An urban, pediatric, tertiary care center emergency department.

Participants: Female caregivers of children.

Main Exposure: Intimate partner violence screening by either an audiotape or written questionnaire method.

Main Outcome Measures: Perceptions of each screening method's safety, acceptability, and ease of use.

Results: Fifty (10%) of 497 participants reported intimate partner violence, 30 (11%) of 266 in the audiotape group and 20 (9%) of 231 in the written questionnaire group ($P = .30$). Women in the audiotape group were significantly more likely to report that the audiotape method did not put them at risk and was private. Women in both groups were satisfied with their screening method and were willing to use it again. Women in both groups preferred their given method over the idea of direct emergency department provider screening.

Conclusions: Screening for intimate partner violence with an audiotape method appears to have several advantages compared with screening by a written questionnaire, and the audiotape method may be associated with slightly higher rates of disclosing intimate partner violence.

Trial Registration: http://clinicaltrials.gov/show/NCT00122395

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INTIMATE PARTNER VIOLENCE (IPV) affects 2 to 4 million women each year, with an estimated 3.3 to 10 million children exposed to this violence.[1] In response to this national endemic, many professional organizations have developed policies recommending routine screening for IPV in health care environments, including emergency departments (EDs)[2,3] and pediatric office settings.[4]

Though no specific guidelines exist regarding IPV screening in a pediatric ED, this setting could provide an important site at which to identify abused women, as the prevalence of IPV is believed to be higher in families who seek care in this environment than in the general population.[5] Screening for IPV in pediatric EDs, however, may be hindered by multiple factors. Among these, ED providers are reluctant to screen secondary to time constraints.[6-9] Also, research has suggested that physicians should not ask IPV questions when children older than 3 years are present secondary to concerns that the child might later disclose the details of the conversation to the perpetrator.[10]

Self-administered IPV screening methods may offer solutions to limited provider time and issues of privacy. Three different styles of self-administered methods include written, computer-based, and audiotape-based questionnaires. While women state that they are comfortable with a written (pen-and-paper) method of screening for IPV, illiteracy (affecting 28% of ED patients in 1 study[11]) could hinder the effectiveness of this method. Additionally, women involved in abusive relationships express concerns that a written questionnaire will become part of their child's medical record, potentially placing them at increased risk.[12] Computer-based screening questionnaires have been found to be acceptable to ED patients and to be effective in eliciting personal information.[13] This technology, however, may be lim-

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Every year, thousands of children are injured in their own homes. In order for us to figure out how to best provide home safety programs for our families in the future, we'd like to ask you some questions about your home.

1. Do you have a working smoke alarm in your house?
2. Do you have working batteries in your smoke alarm?
3. Do you practice a family fire escape route?
4. Do you store cleaning supplies and poisonous items out of children's reach?
5. Do you have a latch or lock to prevent your child from getting into the space where you store cleaning supplies and poisonous items?
6. Do you have the poison control center's phone number near your phone?

Every year, millions of women are abused by a partner. And, the safety of moms can affect the health and safety of children. So, in order for us to figure out how to best provide women with help if they are in a violent relationship with a partner, we would like to ask you some personal safety questions.

7. Do you feel safe in your current relationship with your partner?
8. Have you been hit, kicked, punched, or otherwise hurt by a partner within the past year?
9. Is there a partner from a previous relationship who is making you feel unsafe now?
10. Within the past year, has a partner repeatedly used words, yelled, or screamed at you in a way that frightened you, threatened you, put you down, or made you feel rejected?

Figure 1. Safety questionnaire.

ited owing to the expense and technological complexity associated with its implementation.

The audiotape screening method, with lower associated costs and the potential for improved privacy, involves the use of a personal audiotape and headset with a prerecorded screening questionnaire that prompts the respondent to circle "yes" or "no" answers on a sheet of paper without listing the corresponding question (which is only heard by the respondent via the audiotape). When compared with face-to-face screening by an adult emergency medicine physician, this technique had comparable rates of disclosure and was found to be logistically feasible.[14] To our knowledge, however, the perceived safety, ease, and acceptability of this method have not been examined and this method of screening has not been studied in a pediatric ED environment in which the dynamics of screening, including the presence of older children, may be different than in an adult setting.

We therefore conducted a randomized clinical trial examining female caregivers' perceptions of the safety, acceptability, and ease of use of an audiotape-based method for IPV screening in a pediatric ED. We compared this method with a written questionnaire, hypothesizing that women would find the audiotape method safer and more acceptable and that its use would not be unduly cumbersome.

METHODS

STUDY DESIGN AND SITE

We conducted a randomized clinical trial in the ED of an urban, academic, tertiary care children's hospital that serves as both a local and national referral center. At the time of the study, more than 70 000 children were seen in this ED annually. The patient population of this ED is predominantly African American. Just more than half of the patients at this ED are insured through Medicaid-based health maintenance organizations. The study was approved by the institution's Committee for the Protection of Human Subjects.

SCREENING QUESTIONNAIRE DEVELOPMENT

The safety screening questionnaire comprised 10 questions, including 6 general safety questions about fire safety and poisoning prevention and 4 IPV questions (**Figure 1**). The questionnaire required dichotomous yes or no responses for all of the questions except 1 (question 7) in which a "not applicable" option was also offered. The IPV questions were asked after the 6 general safety questions, with the consideration that respondents are more likely to answer more intrusive questions honestly if they are placed in a context and at a later point in a questionnaire.[15] Representatives (Jill Posner, MD, MSCE, and Linda Hawkins, MSEd) from the Injury Free Coalition for Kids recommended the content of the general safety questions. The IPV questions were based on the Feldhaus Partner Violence Screen, a validated IPV screening tool for use in the ED.[16] One additional question assessing emotional abuse, taken from an IPV instrument validated in an ED population of low-income African American women, was asked as the last question.[17]

After women completed the screening questionnaire, trained research assistants (RAs) asked 10 questions created by us to assess the perceived safety, acceptability, and ease of administration of the survey method. Responses to these questions were rated on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree." Respondent demographic information was collected at the end of the survey.

Prior to enrolling subjects, we assessed the understandability of the questionnaire using cognitive interviewing techniques with 15 women in the pediatric ED. The measure was then modified based on the interview responses. The 4 IPV questions were easily understood and were not modified. A certified translator created a Spanish-language version of the questionnaire, and we piloted this version with 3 native Spanish speakers.

To further pilot test the audiotape method, we asked an additional 10 women to complete the questionnaire using the audiotape, and we then repeated the survey verbally to assure that, when using the audiotape, they had recorded their answers as they had intended even though the answer sheet contained only yes and no choices without written questions. None of the 10 women had gotten off track.

STUDY STAFF AND MEDICAL STAFF PREPARATION

Prior to beginning the study, 3 of us (M.H.B.-M., S.W., and J.F.), along with a representative (Ana Lisa Yoder, LSW) from a local IPV resource and advocacy organization, provided information about this project and about management of IPV with or without concurrent child abuse for the ED attending and fellow physicians, nurses, and social workers. During these sessions, participants were taught to affirm the woman's experiences, emphasize that the abuse was not her fault and that help was available, assess current safety, and offer the assistance of a social worker. Social workers are available 24 hours per day, 7 days per week in this ED.

PARTICIPANTS

All of the English- and Spanish-speaking women who brought a child to our pediatric ED between January 17, 2005, and March 24, 2005, were eligible to participate if they met the following requirements: (1) they were not accompanied by another adult (thereby establishing a setting in which subjects could answer

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questions in a safe and confidential manner); (2) the child was not undergoing acute resuscitation; and (3) they were aged 18 years or older or were an emancipated minor.

ENROLLMENT

Trained RAs who staff this ED between 8 AM and midnight 7 days per week approached potential subjects for consent. During the consent, women were told that the investigators were interested in conducting a study about safety in the home, including smoke alarms, poisoning prevention, and IPV, and they were informed that if they disclosed either IPV or concern about the safety of their children, the RA would inform the attending physician, who may seek the help of the hospital social worker.

RANDOMIZATION METHOD

We prepared identical, sealed, opaque packets containing either the audiotape answer sheet or the written questionnaire. Using a computer-based random number generator, the 2 types of packets were compiled in a random order and sequentially numbered by a work-study student who was not associated with data collection. As each participant consented and enrolled, the RA provided her with the next packet in the random sequence.

INTERVENTION

Subjects randomized to the audiotape group were provided with an audiotape player with a headset and the answer sheet, which was blank other than listing numbers 1 through 10 with yes and no written next to each number. The RA instructed the participant to press the play button and to circle yes or no on the answer sheet in response to each question. The RA did not offer further assistance but remained present for questions.

Subjects randomized to the written questionnaire group were given a written copy of the survey and were asked to complete the items. As with the audiotape method, the RA did not provide help but remained in the room in case the woman had questions.

After completion of the 10 safety screening questions by either method, the RA verbally administered the 10 Likert scale questions assessing the primary study outcomes—the perceived safety, acceptability, and ease of use of the method.

The RAs were instructed to stop the interview if, at any point, another non–medical-providing adult entered the room. After completion of all of the instruments, participants received a packet of information about fire safety and poisoning prevention. If a subject stated that she did not have a smoke alarm, batteries, or latches, she received these items. If a subject responded that she was in a violent relationship, the RA provided her with a hotline card and informed the attending or fellow physician of this issue.

STATISTICAL ANALYSES

All of the data were entered twice into a database program; the 2 copies were then compared for discrepancies. Dichotomous variables were compared using a χ^2 test of binomial proportions. For the principal test for differences in our primary outcomes, the Likert-scaled method acceptability questions, we conducted bivariate analyses using the Wilcoxon rank sum test. The Wilcoxon rank sum test was selected based on the nonnormal distribution of the responses. In addition to these bivariate analyses, we also conducted a multivariable analysis using ordinal logistic regression. This enabled us to look for confounding by IPV disclosure through determining whether the regression coefficients changed more than 10% with and without adjustment for this variable. Through multivariable analysis, we also reported a summary odds ratio measure and assured the stability of our findings across statistical methods.[18]

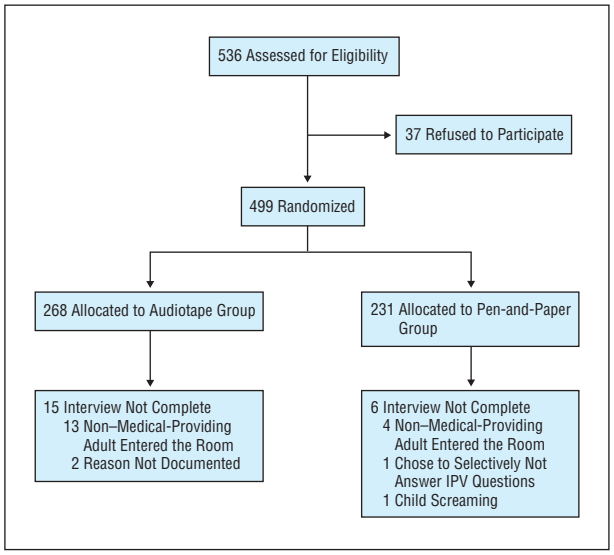

Figure 2. Flow diagram of study enrollment. IPV indicates intimate partner violence.

RESULTS

We enrolled 499 subjects, and the randomization procedure assigned 231 of them to the written questionnaire group and 268 of them to the audiotape group (**Figure 2**). Ninety-four percent of the women who were approached for the study participated. Characteristics of participants in the audiotape and written questionnaire groups were comparable with most women having a high school education and identifying themselves as non-Hispanic African American (**Table 1**).

More than half of the women in both groups had a child older than 3 years in the room. Overall, 10% of the women reported IPV in the past 12 months, defined as either responding no to the question about feeling safe with their current partner or answering yes to any of the remaining 3 IPV questions (**Table 2**). Disclosure rates of IPV were minimally higher in the audiotape group than in the written questionnaire group (11% vs 9%, respectively, equal to a 2% absolute difference or an approximately 20% relative difference), though this difference was not statistically significant ($P=.30$). Regarding the IPV questions, emotional abuse was reported most commonly in both groups. Of the 50 women disclosing abuse in the past year, most (32 women) answered affirmatively to only 1 of the IPV questions, with fewer respondents answering affirmatively to 2 (13 women), 3 (4 women), or 4 (3 women) of the IPV questions.

No statistically significant differences existed between methods with regard to the women's responses to the 6 general safety questions about fire safety and poisoning prevention (results not shown; all $P>.05$). The majority of female caregivers answered that they had a working smoke alarm (audiotape group, 96% of the wom-

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Table 1. Demographic Characteristics of Female Caregivers

Characteristic	Value* Audiotape Group (n = 268)	Value* Written Questionnaire Group (n = 231)
Respondent age, mean (SD), y	34.0 (10.2)	32.4 (8.8)
Ethnicity		
Hispanic	3	3
Non-Hispanic	71	73
Missing	26	24
Race		
African American	70	63
White	22	27
Asian	2	3
Other	1	2
Missing	5	5
Completed education		
High school	56	51
College	21	25
Graduate school	6	9
Technical school	6	5
Other	5	7
Missing	6	3
Age of primary child in room, mean (SD), y	6.2 (5.4)	6.1 (5.2)
Presence of child older than 3 y in room	62	61

*Values are expressed as percentages unless otherwise indicated.

Table 2. Intimate Partner Violence Disclosure*

Disclosure	Audiotape Group, No./ Total No. (%)	Written Questionnaire Group, No./ Total No. (%)	RR (95% CI)
Any IPV	30/266 (11)	20/231 (9)	1.2 (0.8-1.7)
Unsafe in current relationship	2/222 (1)	3/181 (2)	0.5 (0.1-3.2)
Physical abuse	10/265 (4)	9/230 (4)	1.0 (0.4-2.3)
Past partner making participant feel unsafe now	8/265 (3)	3/230 (1)	2.3 (0.6-8.6)
Emotional abuse	24/265 (9)	15/230 (7)	1.4 (0.8-2.6)

Abbreviations: CI, confidence interval; IPV, intimate partner violence; RR, relative risk.

*If answers to all of the 4 questions were missing, IPV data were considered missing. To provide a conservative estimate, if women answered at least 1 IPV question, their data were included in "Any IPV," with the remaining questions considered no evidence of abuse.

en; written group, 98% of the women), had working batteries in the smoke alarm (audiotape group, 95% of the women; written group, 97% of the women), and stored cleaning supplies and poisons out of children's reach (audiotape group, 90% of the women; written group, 89% of the women). In comparison, results were mixed regarding affirmative answers for practicing a fire escape route (audiotape group, 40% of the women; written group, 45% of the women), having a latch for poisonous items (audiotape group, 53% of the women; written group, 58% of the women), and having the telephone number to the poison control center (audiotape group, 59% of the women; written group, 60% of the women).

Women in the audiotape group were less likely to display concern that this method puts a woman in a violent relationship at risk ($P<.001$) and were more likely to consider the method private ($P=.001$) (**Table 3**). In contrast, there was no difference between the audiotape and written groups regarding the perceived privacy of the method for screening for fire safety and poisoning prevention ($P=.30$). Only 16% of women in the audiotape group and 21% of women in the written questionnaire group agreed or strongly agreed that they would prefer that an ED physician or nurse ask the question directly rather than being screened using the method to which they were randomly assigned.

The majority of women in both groups responded that they were satisfied with using the method to answer IPV questions, that they would be willing to use the method again to answer IPV questions, and that the method was a safe way for women to disclose IPV. The majority of women in both groups either disagreed or strongly disagreed that the method was hard to use, and no difference existed between the numbers of women who requested assistance from the RA in the audiotape group (6%) and the written questionnaire group (8%) (relative risk, 0.8; 95% confidence interval, 0.4-1.5).

Intimate partner violence disclosure had the potential to act as a confounder because disclosure differed somewhat between groups, and it also may be related to responses regarding the method acceptability questions. Estimates of subjects' assessments of the 2 screening methods, however, changed by less than 5% in ordinal logistic regression models with and without IPV disclosure as a covariate, providing evidence that the findings regarding the safety, acceptability, and ease of use are not confounded by self-reported IPV. We show the odds ratios and 95% confidence intervals for each question with no covariate adjustment in **Figure 3**, with the same pattern of responses as observed in Table 3.

A subanalysis of women reporting IPV reflected a pattern of responses similar to that of the larger group (Table 3). Like the larger sample, abused women in the audiotape group were significantly more likely to view the method as private ($P=.03$) and to prefer their method to the idea of direct provider screening ($P=.02$). Questions comparing the methods' safety and whether it put women at risk were not statistically significant ($P=.11$ and .22, respectively), though both questions had a mean difference of 0.5, with abused women more likely to agree that the method was safe and more likely to disagree that the method placed women at risk.

COMMENT

This randomized clinical trial comparing the safety, acceptability, and ease of use of an audiotape vs written questionnaire for IPV screening in a pediatric ED demon-

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Table 3. Perceptions Regarding Screening Method

Perception	All Women, Degree of Agreement* (n = 499) Mean (SD)	*P* Value†	Women Who Disclosed IPV, Degree of Agreement* (n = 50) Mean (SD)	*P* Value†
Puts women at risk				
AT	4.2 (0.7)	<.001	4.1 (0.7)	.22
WQ	3.8 (0.9)		3.6 (1.3)	
Private				
AT	1.6 (0.7)	.001	1.6 (0.9)	.03
WQ	1.9 (0.9)		2.4 (1.3)	
Difficult to use				
AT	4.5 (0.7)	.06	4.6 (0.6)	.44
WQ	4.6 (0.6)		4.7 (0.5)	
Prefer physician or nurse to ask				
AT	3.6 (1.1)	.07	3.9 (1.1)	.02
WQ	3.4 (1.1)		3.0 (1.4)	
Safe way to disclose IPV				
AT	1.7 (0.8)	.26	1.4 (0.6)	.11
WQ	1.8 (0.9)		1.9 (1.1)	
Willing to use again				
AT	1.7 (0.8)	.30	1.6 (0.6)	.93
WQ	1.6 (0.7)		1.8 (1.1)	
Satisfied				
AT	1.6 (0.6)	.46	1.6 (0.6)	.52
WQ	1.6 (0.7)		1.7 (0.8)	

Abbreviations: AT, audiotape; IPV, intimate partner violence; WQ, written questionnaire.
*The degree of agreement is rated on a Likert scale of 1 through 5. A score of 1 indicates that the participant strongly agrees; 5, the participant strongly disagrees.
†*P* values are from the Wilcoxon rank sum test.

strated that female caregivers considered the audiotape method to be at least equivalent to the written questionnaire, with the suggestion that screening by audiotape may have some important advantages. Specifically, women found the audiotape method more private and less likely to put an abused woman at risk. Neither group felt that the use of the method was cumbersome, and there was no difference in the need for assistance between groups. Both groups appeared to prefer their given method over the concept of direct provider screening.

The findings of this study should be interpreted in light of several methodological limitations. First, the study did not have sufficient power to detect a modest difference in the rates of disclosing IPV. Second, implementation of our study was aided by RAs who provided the audiotapes, looked at the women's responses, and informed physicians of IPV disclosure. Whether an audiotape-based screening could be effectively integrated into another pediatric ED with fewer resources is unclear. Third, we excluded women who were with another adult during this initial study; whether the level of privacy offered by the audiotape screening method circumvents this barrier to more universal screening is an important question for future research. Finally, this study sought to assess the perceptions that all female caregivers had of the 2 methods as opposed to solely examining the opinions of abused women. Future research might better elucidate abused women's views about an audiotape-based screening.

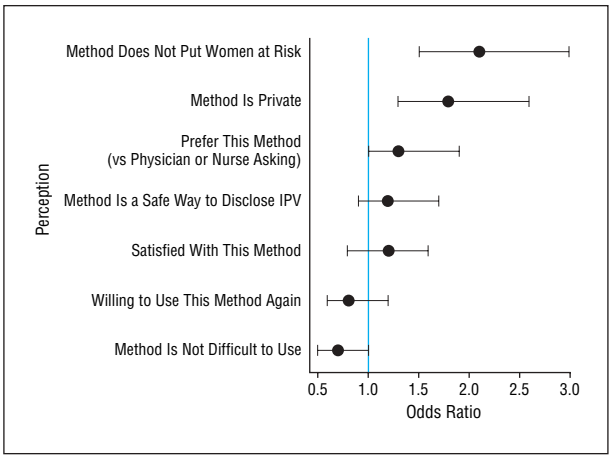

Figure 3. Comparison of perceptions specific to screening methods (audiotape or written questionnaire) among participants. The written questionnaire group is the referent group. Error bars indicate 95% confidence intervals; IPV, intimate partner violence.

Women's perceptions of the privacy associated with IPV screening have important implications in a pediatric setting because the screening dynamics differ from an adult setting. In a pediatric environment, the caregiver is not the practitioner's patient; furthermore, older children often are present in the room. When interviewed, abused women express concerns about disclosing IPV information in the presence of older children,

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leading some authorities to recommend that pediatric providers attempt to ask about IPV when caregivers are alone.[12] Implementing a self-administered method that is viewed as private may alleviate this obstacle.

Women reported apparently disparate findings regarding the perceptions of risk and safety. Although female caregivers believed that the audiotape method was less likely to put women at risk, there was no significant difference between the audiotape and written groups regarding their overall perceptions of safety. Without formal psychometric testing, we do not know whether these 2 questions are measuring the same construct. Clarifying how safety and risk are distinguishable may have important implications for screening and intervention design.

Considering safety and risk with IPV screening is essential. The 2004 US Preventive Services Task Force stated that insufficient evidence exists to recommend either for or against routine IPV screening and that "no studies have directly addressed the harms of screening . . . [for IPV]. Possible harms of screening may include loss of contact with established support systems, psychological distress, and an escalation of abuse."[19] Though this study suggests that the audiotape method engenders less perceived risk for screening, exploration of the actual risks would best be assessed using other indicators such as police reports or women's self-reports of violence after screening.

We also note that the majority of women preferred their self-administered screening method compared with the prospect of provider-based screening. To our knowledge, preferences for provider- vs self-administered IPV instruments have not been previously studied in a pediatric environment.

Intimate partner violence affects the lives of pediatric patients and their caregivers, and pediatricians as a group are recognizing the importance of routine screening. The results of this study suggest that an audiotape with a headset is an option for pediatric ED IPV screening, as it may have some advantages over a written questionnaire. Future work should examine whether these results are reproducible and feasible in other pediatric EDs and whether the audiotape method is deemed to be safe when other adults are present in the room. Finally, though we elected to focus on abused women in this study, future research could examine the use of these methods to screen men for IPV victimization.

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Role of the Sponsor: The Dyson Foundation had no role in the study design or conduct, collection, management, analysis or interpretation of the data, or preparation or review of the manuscript.

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