Journal of Interpersonal Violence
XX(X) 1–21

DOI: 10.1177/0886260512468244
http://jiv.sagepub.com
SAGE

Feasibility of Screening for Intimate Partner Violence at Orthopedic Trauma Hospitals in India

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Abstract

Background: Intimate Partner Violence (IPV) involves behavior that causes physical, psychological, or sexual harm, and has significant health consequences. Given the prevalence of and impact of IPV, various organizations recommend routine IPV screening for women by health-care professionals.

Objective: We investigated the feasibility of screening women for IPV at a hospital in India. Specifically, we assessed prevalence of IPV, method of questionnaire administration, response rate, availability of IPV related community services for referrals, environment of screening, and explored perspectives of health professionals regarding in-hospital screening.

Study Design: We administered two questionnaires to consenting women; the Composite Abuse Scale (CAS) and Woman Abuse Screening Tool (WAST). Health professionals involved in conducting the study and in managing care for patients were also interviewed.

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Results: Forty-seven patients were enrolled in the study. The most reported injury was fractures (39% [CI 25%-54%]) and the greatest proportion involved spine and neck (28% [CI 16%-43%]). Prevalence of IPV was 30% [CI 17%-45%] according to the WAST and 40% [CI 26%-56%] according to the CAS. A majority of the participants used self-report as the method of questionnaire administration. Additionally, the self-report group had greater disclosure than the interview-administered group. The environment at this private hospital was considered adequate for screening and we found several IPV support networks in the community. However, health professionals were reluctant to screen for IPV.

Conclusions: Our findings suggest that screening for IPV at an orthopaedic clinic in India is feasible.

Keywords

community violence, domestic violence < cultural contexts, battered women < domestic violence, assessment < domestic violence, perceptions of domestic violence < domestic violence

Introduction

Intimate partner violence (IPV) has emerged as a global health concern with the potential to harm a woman both physically and psychologically. IPV is defined as "any behaviour within an intimate relationship that causes physical, psychological, or sexual harm to those in the relationship" (Krug et al., 2002) and includes acts such as intimidation, insults and humiliation, sexual coercion, as well as hitting, kicking, and punching (Ellsberg & Heise, 2005; Krug et al., 2002). IPV is associated with significant health consequences. Abused women are more likely than nonabused women to experience increased gynecological, central nervous system, and gastrointestinal problems as well as mental health illness (Campbell, 2002).

While research in the field is increasing worldwide, population-based studies evaluating the extent of the problem, causative factors, as well as individual- and community-level effects are scarce in developing countries (Koenig, Ahmed, Hossain, & Mozumder, 2003). India is one of the fastest growing countries in the world with a population of 1.2 billion and a sex ratio of 940 females for 1,000 males (Chandramouli, 2011). Evidence from literature suggests that due to conditions of extreme inequality, IPV is an ingrained practice in India (Koenig et al., 2003).

While no data are available from medical settings, estimates of IPV prevalence can be found using census data and national studies. The 1998-1999 National Family Health Survey (NFHS) in India reported that 21% of ever-married women had experienced physical abuse by their partners (Koenig et al., 2003). Prevalence rates vary from one state to another. In rural Tamil Nadu, 37% of the women surveyed had been abused by their husbands. In rural Uttar Pradesh, prevalence of IPV was 45% and it was 67% in rural Gujarat (Simister & Makowiec, 2008).

Given the prevalence and impact of IPV, various organizations recommend routine IPV screening for women by health-care professionals (Jack, Jamieson, Wathen, & MacMillan, 2008). In urban and some rural settings, health-care providers may be the primary contact for victims of violence, either through routine or abuse-related care. This puts health-care professionals in an excellent position to recognize abuse and provide effective resource referrals (Bhandari, Petrisor, & Moro, 2009). Intervention may be able to break the cycle of violence by providing victims with needed support and information (Hadley, 2002). However, statistics show that many victims of abuse who see health-care professionals are not identified as such and consequently do not receive the help they require (Hadley, 2002). Practicing orthopedic physicians come into contact with women experiencing IPV, particularly severe physical violence, in emergency departments, trauma clinics, as well as office settings, and therefore can be a secondary point of identification and intervention for IPV victims. As social and cultural norms in India regard IPV as a private family matter, it is likely that the issue is underemphasized among practitioners who care for musculoskeletal injuries (Bhandari et al., 2008).

We conducted a pilot study to assess the feasibility of screening women for IPV at a hospital-based trauma clinic in India. Results from this study will guide the methodological design of a larger study and will provide information on patients and health-care providers in this setting.

Method

Study Eligibility

We conducted an observational study at the Sancheti Institute for Orthopaedics and Rehabilitation (SIOR) in Pune, India. Approval was obtained from the Research Ethics Boards at McMaster University, Canada, and the Sancheti Hospital, Pune.

For inclusion in the study, the woman had (a) to present to the fracture clinic for her own appointment; (b) be of Indian nationality; (c) be at least

16 years of age; (d) be able to read or understand Marathi, Hindi, or English; (e) be able to separate herself from anyone who accompanied her to the fracture clinic; (f) provide informed consent; and (g) either currently be in an intimate relationship or have been in one previously. We excluded patients who were too ill, injured, or cognitively impaired to answer IPV-related questions.

Study Design

Eligible women were approached by a female research coordinator in outpatient clinics between May and June, 2011, while they waited for their appointment. Seven trauma clinics were used to recruit patients. Once patients agreed to accompany the research coordinator to learn more about the study, they were escorted to a private room where the study was further explained and informed consent was obtained. They then completed the IPV screening questionnaire, composed of the Composite Abuse Scale (CAS) and Woman Abuse Screening Tool (WAST). Participants were read the questionnaire by a female research coordinator if they were illiterate or requested this method. The research coordinators were familiar with the local culture and received brief training on interacting with patients who screened positive for IPV. Research coordinators directed patients to the on-site psychiatrist if they wished to discuss their results.

We also interviewed four health professionals involved in conducting the study and in managing care for patients at the trauma center. The group included an attending trauma physician, a physiotherapist, and two research coordinators involved in recruitment and interview. They were asked the following open-ended questions to start the discussion:

1. Do you think the questions are too personal to ask? Why?
2. Would you feel uncomfortable asking such questions?
3. How appropriate are the questions for Indian women?
4. Do you think this research should be conducted in India (specifically SIOR)? Why or why not?
5. Should the questionnaires be orally administered or in a self-report manner?
6. What changes should be made to the study? Should both questionnaires (the CAS and WAST) be used in the study?
7. If one of the above questionnaires should be excluded, which one and why?
8. Should physicians ask about IPV during visits?

Data from the interviews were recorded, categorized, and then analyzed by two independent assessors for themes and patterns in accordance with

7. We would like to know if you experienced any of the actions listed below and how often it happened during the past twelve months. If you were not with a partner in the past twelve months, could you please answer for the last partner that you had. ***Please tick the appropriate box, which matches the frequency, over a twelve month period, that it happened to you.*** *(please tick one box on each line)*

Actions	How often it happened					
My Partner:	Never	Only Once	Several Times	Once/ Month	Once/ Week	Daily
Told me that I wasn't good enough	☐0	☐1	☐2	☐3	☐4	☐5
Kept me from medical care	☐0	☐1	☐2	☐3	☐4	☐5
Followed me	☐0	☐1	☐2	☐3	☐4	☐5
Tried to turn my family, friends and children against me	☐0	☐1	☐2	☐3	☐4	☐5
Locked me in the bedroom	☐0	☐1	☐2	☐3	☐4	☐5

Figure 1. Excerpt from the Composite Abuse Scale

Pope, Ziebland, & Mays (2000) and Taylor-Powell & Renner (2003). In addition, the investigator kept a field log of observations, reflections, feelings, and interpretations regarding the study. Wherever possible, the observations were recorded on the spot, during the event (Ellsberg & Heise, 2005). Results from the interviews and observations made by the investigator were used to assess feasibility of a larger study.

Screening Questionnaire

Eligible women completed the WAST and CAS. The CAS is widely used to self-report behaviors that women describe as abusive by their partners and can be interviewer-administered. This tool provides standardized subscale scores on four dimensions of intimate partner abuse: physical abuse, emotional abuse, severe combined abuse, and harassment. It consists of 30 items scored as 0 (never), 1 (only once), 2 (several times), 3 (monthly), 4 (weekly), and 5 (daily) in the last 12 months of an intimate relationship with the most recent partner (Figure 1). The scale has been validated on a sample of general

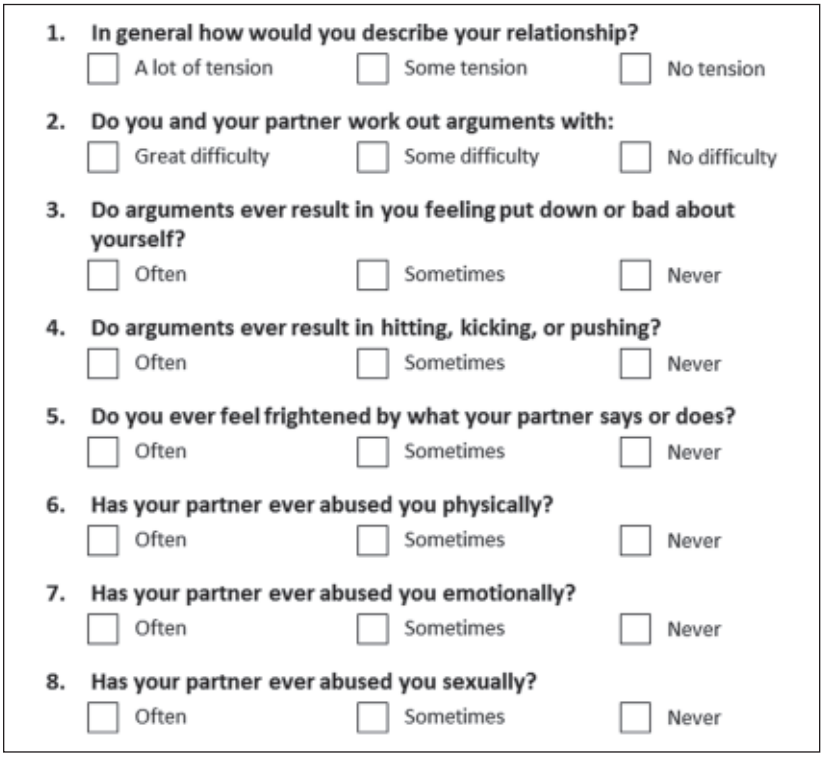

Figure 2. The Woman Abuse Screening Tool

practice patients and emergency department patients. It is considered the gold standard in screening for IPV. A score of 7 or higher indicates a positive screen (Hegarty, Sheehan, & Schonfeld, 1999; Hegarty, Gunn, Chondros, & Small, 2004). The WAST is an eight-item instrument that measures physical, sexual, and emotional abuse. Questions are scored as 1 (never), 2 (sometimes), and 3 (often) (Figure 2). The WAST inquires about actions that have "ever" resulted in abuse with the most recent partner. Based on data from an earlier trial, a score of 13 or more on the WAST indicates exposure to IPV (Bhandari et al., 2011). In comparison to the WAST, CAS asks behavior specific questions and therefore we predict it will be more accurate in capturing cases of IPV. Using both questionnaires gave us an opportunity to explore agreement of the WAST in comparison to the gold standard (the CAS) and the feasibility of using either both questionnaires or just one in the

proposed setting. The questionnaires were translated to Hindi and Marathi and then back-translated to ensure comparability to the English version. Our questionnaire also included items to capture age, income, education, marital status, length of relationship, and type and location of injury.

Safety of Recruited Women

Due to the nature of the research topic, care was exercised in recruiting individuals to participate in the study. At no point during the initial contact with participants was there any mention of the words "abuse" or "violence." Instead, the study was briefly introduced as an effort to learn about social influences on women's health. If the potential participant was able to come by herself to the private location, the study was explained in detail, informed consent was obtained, and the study coordinator remained in the private location to ensure that the participant was not interrupted while she completed the questionnaire. It is common practice for study participants to be given a copy of the consent form, but an abused woman's participation in the study, if known to the abuser, can compromise her safety. Therefore, in this study, the consent form was not given to the participants (Btoush & Campbell, 2009).

Feasibility

We specified several criteria to determine whether a larger study was feasible in this setting. If we found prevalence between 25% and 40%, we would deem it sufficiently reflective of the violence in this region as reported by the NFHS (29% in Maharashtra) and high enough to warrant a larger study at hospital-based trauma clinics. Data on domestic violence has been collected using a variety of methods. Evidence from the literature supports the use of self-report questionnaires because it normally leads to greater disclosure possibly due to increased privacy and greater comfort (Webster & Holt, 2004; Canterino, VanHorn, Harrigan, Ananth, Vintzileos, 1999). Accordingly, we would conduct a larger study if majority of patients were able to use self-report. In addition, similar cross-sectional studies have found response rates that vary from 60% to 85% (Richardson, Coid, Petruckevitch, Chung, Moorey, & Feder, 2002; Bradley, Smith, Long, & O'Dowd, 2002; McCauley et al., 2004). Given the conservative culture in India, we anticipated that it might be difficult to get a high response rate. However, were we to find a response rate lower than that found currently in literature (less than 60%), we would not consider a large study feasible in this setting.

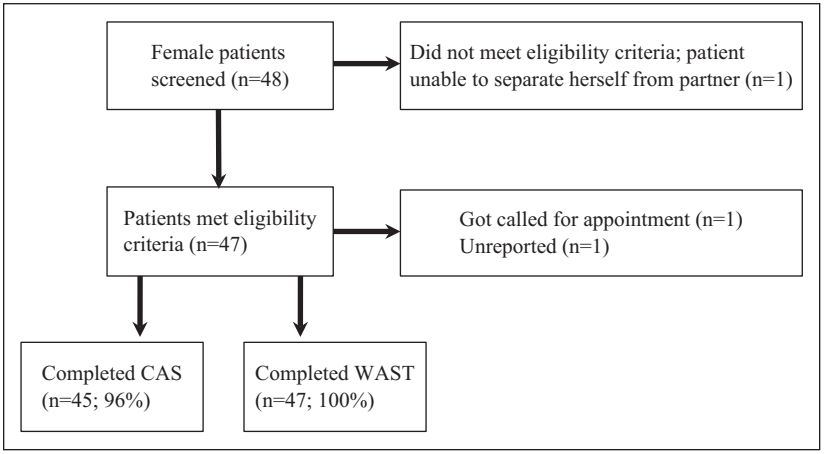

Figure 3. Flow diagram of participant screening, enrollment, and completion of questionnaires

A commonly reported barrier in screening for IPV is lack of privacy. For research of this nature, screening should be conducted in private rooms, separated by walls and with doors that can be closed (Btoush & Campbell, 2009; Ellsberg, Heise, Pena, Agurato, & Winkvist, 2001). If we found that such an environment was not available, a larger study would not be feasible. In addition, to ensure adequate disclosure in and feasibility of a large-scale study, we assessed perspectives of health professionals involved in screening. If health professionals were not open to screening initiatives and unwilling to manage IPV-related care, feasibility would be compromised. Lastly, if women screen positive for IPV, they should have access to help and counseling either from physicians on-site or as a result of referrals to relevant community services. Therefore, in this pilot study we investigated whether such services were available, accessible, and useful to abused women.

Statistical Analysis

Continuous data were presented as means and standard deviation (*SD*). Data for the WAST and CAS were reported as proportions screened positive for IPV, with exact 95% confidence intervals (CIs). Given the small size of this pilot study, the CIs were necessarily quite wide. We included data from partially completed questionnaires and missing data were either imputed by find-

Table 1. Demographic characteristics of included participants

Item	Total *SD*(%)
Education	
No high school education	11 (23)
Some high school education	12 (26)
High school diploma	9 (19)
Graduated college	6 (13)
Bachelor's degree	7 (15)
Master's degree	1 (2)
Doctorate	0 (0)
Professional degree	1 (2)
Marital status	
Married	47 (100)
Children	
Yes	41 (87)
No	6 (13)

ing a question with high correlation among the completed survey or if no such correlation existed, missing data were imputed using maximum likelihood ratio. In addition, we used the two-sided Fisher's exact test to determine the significance of association between the method of reporting (self-report vs. interview) and percentage screened positive for both the WAST and CAS. Lastly, we conducted sensitivity and specificity analyses of the WAST considering the CAS as the gold standard. Statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS) version 19.

Results

Characteristics of Respondents

Forty-eight patients were screened for participation in the study over two months, and 47 were found to be eligible. All 47 provided informed consent. Of the 47 women surveyed, 45 completed the CAS and all 47 women completed the WAST (Figure 3). All women were married with a mean age of 42.3 (SD = 12.6) years. Of the women who reported the duration of their current relationship (n = 28), the mean duration was 16.6 (SD = 12.5) years.

Table 2. Results of the Woman Abuse Screening Tool

Item	Total [CI]
In general, how would you describe your current relationship?	
No tension	29 (62%) [46%, 75%]
Some tension	16 (34%) [21%, 49%]
A lot of tension	2 (4%) [0.5%, 15%]
Do you and your partner work out arguments with:	
No difficulty	11 (23%) [12%, 38%]
Some difficulty	36 (77%) [62%, 88%]
Great difficulty	0 (0%) [0%, 8%]
Do arguments ever result in you feeling put down or bad about yourself?	
Never	16 (34%) [21%, 49%]
Sometimes	27 (57%) [42%, 71%]
Often	4 (9%) [2%, 20%]
Do arguments ever result in hitting, kicking, or pushing?	
Never	33 (70%) [55%, 83%]
Sometimes	13 (28%) [16%, 43%]
Often	1 (2%) [0.05%, 11%]
Do you ever feel frightened by what your partner says or does?	
Never	29 (62%) [46%, 75%]
Sometimes	17 (36%) [23%, 51%]
Often	1 (2%) [0.05%, 11%]
Has your partner ever abused you physically?	
Never	38 (81%) [67%, 91%]
Sometimes	9 (19%) [9%, 33%]
Often	0 (0%) [0%, 8%]
Has your partner ever abused you emotionally?	
Never	32 (68%) [53%, 81%]
Sometimes	15 (32%) [19%, 47%]
Often	0 (0%) [0%, 8%]
Has your partner ever abused you sexually?	
Never	42 (89%) [77%, 96%]
Sometimes	5 (11%) [4%, 23%]
Often	0 (0%) [0%, 8%]
WAST screen for intimate partner violence	
Positive (score 13 to 24)	14 (30%) [17%, 45%]

Table 3. Composite Abuse Scale (CAS) Subcategories

	Positive
CAS Emotional	16 (36%) [22%, 51%]
CAS Physical	8 (18%) [8%, 32%]
CAS Harassment	9 (20%) [10%, 35%]
CAS Severe combined abuse	28 (62%) [47%, 76%]
CAS screen for intimate partner violence	18 (40%) [26%, 56%]

Twenty-three percent reported having no high school education, and 26% had some high school education, but had not completed it. Most women (87%) had children (Table 1). Fractures were the most common type of injury (39%, 95% CI = [25%, 54%]). The most commonly reported cause of injury was slip and fall and the most frequent body site injured was the spine including the neck (28% CI = [16%, 43%]).

Feasibility of Screening in an Injury Clinic Setting

Prevalence of intimate partner violence. Our findings indicated the prevalence of IPV determined by the WAST to be approximately 30% (CI = [17%, 45%]). Individual types of IPV had reported prevalence of: physical violence, 19% (CI = [9%, 33%]; emotional violence, 32% (CI = [19%, 47%]); and sexual violence, 11% (CI = [4%, 23%]; Table 2). The 12 month prevalence of IPV determined by the CAS was 40% (CI = [26%, 56%]). The distribution (Table 3) indicated emotional violence to be 36% (CI = [22%, 51%]) and physical violence to be 18% (CI = [8%, 32%]).

Method of questionnaire administration. Twenty-five women (53%) used self-report and 22 women (47%) were interviewed by a research coordinator. Of the self-report group, 72% (CI = [47%, 90%]) were identified as positive by the CAS and 64% (CI = [35%, 87%]) by the WAST. Of those who were interview-administered, 28% (CI = [10%, 53%]) screened positive with the CAS and 36% (CI = [13%, 65%]) screened positive with the WAST. With respect to our criteria for feasibility, we found that a greater proportion of participants used self-report and that a higher prevalence existed in this group (p = .358 for WAST, p = .033 for CAS). However, the difference was not significant for the WAST.

Response rate, environment, and community services. We found a response rate of 96% that was deemed abundantly sufficient for a larger study. Private rooms were available at the outpatient department (OPD) for questionnaire administration. Therefore, the environment was deemed appropriate for a larger study. In addition, we found several nongovernmental organizations and local groups with a mandate for helping victims of IPV, so it was possible to recommend women to community services to seek support if they screened positive. Participants also had the opportunity to discuss their results with an on-site psychiatrist; however, none of the participants chose to use this service.

Perspectives of health professionals involved in the study. We explored perspectives of four health professionals involved in the implementation of the study and care of IPV patients in a semistructured interview. All four expressed a concern that the questions asked were too personal and not compliant with the Indian culture. They expressed that Indian culture is not conducive for open discussions about sexuality and abuse, even in health-care settings:

> In India, the population isn't very open to answering the questions. Even the educated and affluent individuals wouldn't be comfortable answering the questions.

> Indian women are shy when asked about intimate questions.

However, the interviewees disagreed on the anticipated reaction by patients. One believed that affluent patients were more prone to being offended and would respond by not returning to the institution for further care:

> If they are rich patients, they may be offended and choose not to return.

The others expressed that if personal questions were asked, specifically questions inquiring into sexual relations, patients might refuse to answer altogether or answer dishonestly.

> Patients would rarely share this [information] with family and probably not doctors either. If the sexual questions are asked, the patients may not be inclined even to answer the remaining questions. So if these are avoided then at least we can get answers to the rest of the questions.

> The [sexual] questions can be asked, but I'm not sure that they would give an answer. Even though the questions were answered in the questionnaires, the answers may not be honest.

> With respect to questions about IPV, Indian patients may get disturbed when inquired about sexually uncomfortable acts. They will most likely refrain from answering such questions.

In addition, a trauma physician involved in the care of IPV patients suggested the use of questionnaires validated in an Indian setting that were sensitive to the Indian culture to conduct IPV research. His suggestions are outlined below:

> Pre-established scales are not appropriate or applicable in India . . . the first three questions of the CAS indicate/connote multiple partners and this is not appropriate for an Indian setting. The first question is about adult intimate relationship in the last 12 months, then currently "have you ever been afraid of any partner." This goes against social norms. Question 7 asks about "last" partner you've had—this may be confusing for an Indian woman.

Lastly, many expressed that private hospitals were not the right place to screen for IPV. This belief appeared to stem from a fear of alienating affluent patients, a notion that personal affairs of the patient are not a concern for doctors, and a concern regarding sample size and quality:

> Private hospitals are not the best place because the patients may not come back . . . in a government setting . . . they have social workers asking similar questions so the patients may be used to these kinds of questions.

> We should not get involved in a patient's intimate life . . . that is not our profession. Ultimately, the patient may undergo abuse again if they are caught answering questions. It is an unusual situation for doctors.

> If you want good quality data then the general hospital should be considered. If the study is conducted here, the sample size will be very small . . . general hospitals will have more cases of IPV.

Comparison of the WAST and CAS

Sensitivity of the WAST with the CAS as the gold standard was 50% (CI = [26%, 74%]) and the specificity was 89% (CI = [71%, 98%]). It should be noted that using a lower cutoff score for a positive screen on the WAST (<13) will increase the sensitivity when compared to the CAS while decreasing specificity.

Discussion

Summary of Key Findings

We found prevalence of IPV in this setting to range between 30% and 40% (albeit with wide confidence intervals) depending on the screening instrument used. Furthermore, our findings suggest that prevalence was higher in the self-report group. With respect to perspective of health professionals, we found that most would be reluctant to screen for IPV and particularly hesitant in inquiring about sexual abuse. Lastly, comparing the WAST to CAS, we found poor sensitivity (50%) but excellent specificity (89%).

Feasibility

We defined specific success criteria to assess whether it would be feasible to conduct a large-scale study. Our results indicate between 30% and 40% prevalence, a 98% response rate, greater use (53%) of self-report questionnaire, in conditions where there was availability of private rooms for questionnaire administration, as well as availability of adequate community services and resources for positively screened participants. Most of these findings match our success criteria and suggest that it will be feasible to conduct a larger-study screening for IPV. The fact that only few more people used self-report as the method of administration could compromise feasibility. However, the literacy rate for Maharashtra is approximately 80% according to the 2011 census (Deol, 2011), and therefore we believe that most participants should be able to self-report. The high observed use of interview-administration is likely due to the small sample size of this study.

Our discussions with four individuals suggest that Indian health professionals may be reluctant to engage in IPV screening. Additional training and education highlighting the burden of IPV, the negative health consequences, and how to work with patients once they have disclosed IPV may be helpful in addressing this resistance.

Evidence from literature has documented the effectiveness of training for health-care professionals involved in IPV-related care and research. A randomized controlled trial in five clinics of a health maintenance organization found improved provider self-efficacy, decreased fear of offense and safety concerns, and increased perceived asking about IPV after training. Results indicated that screening for IPV increased by 14.3%. Compared to control clinics, there was a 3.9-fold relative increase at 9 months in intervention clinics (Thompson et al., 2000). In addition, Wong, Wester, Mol, & Largo-Janssen (2006) conducted a randomized control trial comparing awareness of IPV after attending focus group and training with focus groups only. They found training to play a key role in improving awareness and identification of IPV (Wong et al., 2006). Ultimately, training will improve the health professionals' comfort in asking questions about IPV, increase their awareness, begin a change in practice that can be sustained after completion of the study, and effectively address the victims once they have disclosed IPV.

Strengths and Limitations

This study has several important strengths. First, it is among the first to explore feasibility of screening for IPV in an Indian health-care setting. Particularly, no such attempt has been made at orthopedic trauma centers. Other strengths include our broad eligibility criteria making results more generalizable to the population, use of female research coordinators to recruit and administer questionnaires, and ensuring that questionnaires are completed in a private location. We also used two screening tools to identify cases of IPV.

A unique aspect of this study was that it allowed us to explore the perceptions of health professionals with regard to screening for IPV, the design and implementation of a large-scale study, and role of physicians in managing IPV-related care. We found a high response rate and patients provided questionnaires with minimal missing information, which suggests that most patients did not object to being asked about IPV. It is perhaps hesitance on the part of health-care professionals that makes screening and managing IPV care difficult. In a conservative society like India, it may be necessary to change the perspectives of health professionals to implement methodologically sound prevalence studies and widespread screening.

Some additional strengths include being able to compare the WAST and CAS in this setting. This has not previously been done and provided us with an opportunity to evaluate the use of the WAST for the large-scale study. However, we were unable to test the psychometric properties of the translated questionnaires due to constraints of time and resources. For the larger study,

the psychometric properties of both questionnaires should be analyzed to confirm their validity in an Indian setting

The present study has several other limitations that should be addressed for a large-scale study. A major limitation stemmed from sampling method and the presence of a selection bias. Patients were screened only from OPDs at a private hospital. Inpatient departments (IPD) were not used because family members frequently surrounded these patients. Furthermore, the IPD patients had more severe medical conditions and thus were not in a position to complete questionnaires. It is possible that IPD patients differed from OPD patients in terms of prevalence and severity of abuse. The severe medical condition of IPD patients could have resulted from an episode of IPV. By excluding such patients, we are reducing the generalizability of our results.

A possibility of bias exists in interviewer-administered questionnaires because patients may have been more hesitant in disclosing their true status to an interviewer than completing the questionnaire themselves. Our comparison of differences in disclosure by method of administration indicates that 47% of the questionnaires were completed by interviewers and 53% were self-report. There was a higher prevalence of IPV in the self-report group than the interview-administered group, but this trend was only significant in the CAS. The difference in prevalence could be due to the cultural norms in this region. In conservative societies, such as that of India, great value is placed on keeping family matters private (Kataoka, Yaju, Eto, & Horiuchi, 2010). In this circumstance, it may be difficult to disclose private matters to another person, even if the other person is a health professional. With regard to IPV, disclosing though a face-to-face interview is more difficult than privately filling out a written questionnaire. It is possible, however, that the increased disclosure could be a result of small sample size and because participants were not randomly allocated to the self-report and interview-administered groups.

Interpretation

Our findings indicate that the WAST found a lower IPV prevalence when compared to the CAS. This finding is discrepant with current literature that has found the WAST to overestimate prevalence (MacMillan et al., 2009). We believe that our low estimates result from the broad nature of questions included on the WAST, such as “In general, how would you describe your current relationship?” as well as questions that inquire into abuse, such as “Has your partner ever abused you physically/emotionally/sexually?” In an Indian setting, where domestic violence and abuse is normalized, women may not recognize that they are being abused and may perceive the behavior

to be standard. As such they may not report this abuse on the WAST. In addition, the WAST inquires only about arguments that have resulted, it fails to capture situations where women may be complying with their partner's demands or emotional abuse in an attempt to stifle further abuse. These omissions of behavior specific questions, which become particularly important in settings of gender inequality, may also lead to an underestimation of prevalence obtained through the WAST. However, the CAS asks questions using specific examples, leading women to reflect back upon their experiences and encouraging report of any abuse, thus resulting in more accurate estimates.

Implications for Practice, Policy, and Research

- Screening for IPV at Indian trauma centers appears to be feasible.
- Practitioners should be aware that women presenting to trauma hospitals may have experienced physical, emotional, or sexual IPV.
- Practitioners should recognize that women are more comfortable with being questioned about IPV than what is commonly believed.
- Continued advocacy is needed to change the way health professionals approach and view IPV.
- Larger prevalence studies are needed that establish the prevalence across India.
- Research that assess the effectiveness of screening in combination with community based interventions in decreasing reoccurrence of IPV is needed.

Acknowledgments

A special thanks to Dr. Steve Rocha, Dr. Pranjali Jadhav, Ms. Nalini Gwande, and Mr. Alfred Anthony at SIOR and Ms. Sheila Sprague at McMaster University for help with data collection and analysis.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The first author received a graduate scholarship to fund the trip to India.

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Bios

Zahra Sohani obtained a Bachelor of Health Sciences degree from McMaster University in 2010. Following this, she pursued an MSc in Global Health. Her research focuses on women's health in multiethnic populations as well as management of care for vulnerable groups. She recently completed a pilot study exploring the feasibility of screening women for intimate partner violence (IPV) at trauma clinics in India. Under the supervision of Mohit Bhandari, she is using these results to design a larger study screening for IPV at orthopedic trauma clinics across India.

Harry Shannon is a professor in the Department of Clinical Epidemiology and Biostatistics, and an adjunct scientist at the Institute for Work and Health. Shannon's research interests have included workplace health and safety, specifically the role of organizational factors and interventions to create safe workplaces. He is currently chair of the Methodology Working Group for the Canadian Longitudinal Study on Aging. He has been an investigator for a number of global health projects, including studies in Gaza, the West Bank, Lebanon, and Haiti. He is interested in determining optimal methods of sampling when conducting surveys in low income countries, disaster areas, or war zones.

Jason Busse has completed a BSc in microbiology and an MSc in medical and molecular genetics at the University of Toronto, a Doctorate in Chiropractic at CMCC, training in Cognitive Behavioral Therapy at McMaster University, and a PhD in Health Research Methodology at McMaster University under the supervision of Gordon Guyatt. Busse is an assistant professor in the Department of Clinical Epidemiology & Biostatistics at McMaster University, and a scientist at the Institute for Work & Health. Busse has been active clinically in the management of disability secondary to chronic pain and fatigue syndromes since 1999 and currently serves as a consultant for Prisma Health Canada. He has authored over 80 peer-reviewed publications with a focus on medically unexplained syndromes, orthopedic trauma, and methodological research. His academic efforts are supported by a New Investigator Award from the Canadian Institutes of Health Research.

Diana Tikasz is the coordinator of the Sexual Assault/Domestic Violence Care Centre at Hamilton Health Sciences, a program providing medical and counseling services to women who have been sexually or domestically assaulted. She works directly with women affected by violence and has in-depth training in trauma-focused work. She sits on numerous community and provincial committees on violence against women. She has been instrumental in developing several programs including the expansion of Sexual Assault Care Centre services to include women who have

been domestically assaulted. She has spearheaded numerous educational initiatives such as a rape drug campaign and a domestic violence screening initiative in hospital emergency departments. She has developed and conducted woman abuse education sessions at each of the clinical trial sites.

Parag Sancheti is the chairman of Sancheti Institute for Orthopaedics & Rehabilitation in Pune, India, and a professor at Maharashtra University for Health Sciences. His research mainly focuses on the treatment and management of orthopedic trauma. Sancheti has been recognized for his contribution to the field of medicine, specifically orthopedics, by the MITCON Achiever's award. He has published many peer-reviewed articles in journals such as the *Indian Journal of Orthopedics* as well as *Clinical Nuclear Medicine*.

Mangesh Shende has extensive experience in conducting surgical research in India. He completed his postgraduate studies in clinical trial management in 2008 after completing his physiotherapy degree. Currently, his current research interests involve the development of observational studies to report the growing burden of trauma in low and middle income countries. His goals are to learn more about surgical randomized controlled trials in order to improve the methodology of trials in Asia and India.

Mohit Bhandari is professor and chair at the Division of Orthopaedic Surgery at McMaster University. His research broadly focuses on clinical trials, meta-analyses, methodological aspects of surgery trials, and the translation of evidence into surgical practice. He has received international recognition for his research efforts including a nationally recognized Canada Research Chair in Musculoskeletal Trauma. He currently holds funding from the National Institutes of Health and Canadian Institutes of Health. To this end, he has received over 25 million dollars in research funding.