Evaluation of a two-question screening tool in the detection of intimate partner violence in a primary healthcare setting in South Africa

A Saimen[a], E Armstrong[a], C Manitshana[a] and I Govender[b]*

[a]Department of Family Medicine, University of the Witwatersrand, Johannesburg, South Africa
[b]Department of Family Medicine and Primary Health Care, Sefako Makgatho Health Sciences University, Pretoria, South Africa
*Corresponding author, email: indiran.govender@gmail.com

Introduction: Intimate partner violence has been recognised globally as a human rights violation. It is universally under-diagnosed and the institution of timeous multi-faceted interventions has been noted to benefit intimate partner violence victims. Currently the concept of using a screening tool to detect intimate partner violence has not been widely explored in a primary healthcare setting in South Africa, and for this reason the current study was undertaken. The objectives of this study were: (1) to determine the operating characteristics of a two-question screening tool for intimate partner violence (Women Abuse Screening Tool–short); and (2) to estimate the prevalence of intimate partner violence among women attending an outpatient department, using a validated questionnaire (Women Abuse Screening Tool).
Methods: A cross-sectional study was conducted prospectively at the outpatient department of a primary care hospital, with systematic sampling of one in eight women over a period of three months. Participants were asked about their experience of intimate partner violence during the past 12 months. The Women Abuse Screening Tool–short was used to screen patients for intimate partner violence. To verify the result of the screening, women were also asked the remaining questions from the full Women Abuse Screening Tool.
Results: Data were collected from 400 participants, with a response rate of 99.3%. Based on the results for the Women Abuse Screening Tool, the prevalence of intimate partner violence in the sample was 32%. The Women Abuse Screening Tool–short was shown to have a sensitivity of 45.2% and specificity of 98%.
Conclusion: With its high prevalence, intimate partner violence is a health problem at this facility. The Women Abuse Screening Tool–short lacks sufficient sensitivity and therefore is not an ideal screening tool for this primary care ambulatory setting. The low sensitivity can be attributed to the participants' understanding of the screening questions, which utilise Eurocentric definitions of intimate partner violence. Improvement in the sensitivity of the Women Abuse Screening Tool–short in this setting may be achieved by lowering the threshold for a positive result.

Keywords: intimate partner violence, primary healthcare facility, screening tool

Introduction

Intimate partner violence (IPV) refers to behaviour in an intimate relationship that causes physical, sexual or psychological harm, including controlling behaviours.[1,2] In South Africa (SA), the Domestic Violence Act focuses on addressing IPV, and the Act includes psychological and economic violence.[1] Reporting of IPV is not always done accurately, so the exact prevalence rates in all regions of SA are unknown.[2]

In a South African primary health care (PHC) facility, the use of a prompt tool that included open-ended questions identified 106 women who had experienced IPV, with 33% being in urban facilities and 67% in rural facilities. The study found that 90% of the women experiencing IPV were missed when the screening tool was not used.[3] In KwaZulu-Natal, of 340 pregnant women, 106 women reported IPV, with a lifetime prevalence rate of 31%.[4] This reveals the high prevalence of IPV among women of childbearing age in SA.

The health consequences of IPV include female homicide, with a rate of 8.8 per 100 000 in SA.[5,6] Interventions have been shown to have a positive outcome for women experiencing IPV.[6] However, screening for IPV depends partly on which IPV screening tool is used, and the appropriateness of this screening tool. A screening tool is required that can be incorporated into screening protocols.

An effective screening tool encourages early recognition of IPV. The Women Abuse Screening Tool (WAST) results correlated well with other reference standards, and the WAST–short has shown high sensitivity in detecting IPV among both English- and non-English-speaking women in European countries.[7]

This study was undertaken to evaluate the psychometric properties of a short screening tool that could potentially be implemented in IPV protocols. This was the first time that the WAST was used in a South African primary healthcare setting. Our study also provided information on the prevalence of IPV among women attending a primary health care facility in Gauteng, South Africa.

Methods

The objectives were to determine the sensitivity and specificity of a two-question screening tool for IPV in an outpatient department (OPD) setting. This was a cross-sectional study, conducted prospectively using the WAST tool.

WAST–short

This is a two-question screening tool that was developed in Canada but has been widely used in other countries.[7] The WAST–short may offer a practical approach to screening for IPV in a busy primary care OPD.

This consists of the first two questions of the longer eight-item WAST–long (supplementary information). The two questions are:

1. In general, how would you describe your relationship with your partner?

□ A lot of tension □ Some tension □ No tension

2. Do you and your partner work out arguments with…?

□ Great difficulty □ Some difficulty □ No difficulty

Women were screened for IPV during the past 12 months. The criteria used to interpret the results were as follows: participants who answered 'a lot of tension' and 'great difficulty' to the WAST–short were regarded as a positive result for IPV.[8]

To verify the results, all women were then asked the remaining questions from the WAST–long. This allowed for the sensitivity and specificity of the two-question tool to be evaluated against the WAST–long results. For the WAST–long, possible scores ranged from 8 to 24, and a positive cut-off score of 13 was used.[9,10] Women were asked about the intensity of tension, difficulty in their current relationship and the frequency of episodes of emotional, physical and sexual violence. A Likert-type scale ranging from 1 to 3 was used for the scoring, with 3 representing a more frequent event and 1 representing a lower intensity or frequency.[11]

The WAST–long was used as the correlation measure (gold standard) in this study. A 'gold standard' (appropriate screening comparison) has not been determined for testing the sensitivity and specificity of IPV screening tools in PHC due to the complexity of IPV.[12,13] Although the Abuse Risk Inventory (ARI) has been used in previous studies the length of this self-administered questionnaire made it impractical in the current setting.[14] There is strong evidence of a close correlation between the results for the WAST–long and the ARI, which justified the decision to use the WAST–long as a correlation measure.[13,14]

Definitions of terminology used (i.e. 'physical abuse', 'emotional abuse', 'sexual abuse') were also included to provide participants with clarification of the terms.[15] The socio-demographic characteristics of the participants were also recorded.

Setting
This study was conducted at the Outpatients Department (OPD) at Dr Yusuf Dadoo Hospital, a district hospital in the West Rand, South Africa.

Procedure
On receiving their files, potential participants meeting the inclusion criteria were given a piece of paper numbered from 1 to 8. Patients then had their vital measurements taken. The nurse taking the vitals was trained to ask every potential participant with an '8' paper if she would be prepared to be interviewed by the doctor performing research. Those who agreed were taken to a private room where informed consent was obtained.

The questionnaires were administered to participants by a nurse research assistant, who had been trained in accordance with the WHO guidelines for conducting research on IPV.[16] The training ran over a three-week period.

Women who were identified as victims of IPV received assistance immediately from the researcher or research assistant liaising with the hospital social worker. If necessary the women were taken to a place of safety. The hospital social worker followed up those with IPV.

Sampling
Systematic sampling was undertaken of one in eight women over three months. The sample size was calculated based on the statistics of the OPD during the first quarter of 2013, during which 3 200 female patients had presented at the OPD. The estimate of IPV prevalence was based on a WHO study on IPV, which found the prevalence among women to be approximately 37%.[17]

The sample size of 360 women was calculated using the formula $n = 1.96*1.96*0.366*0.634/(0.05*0.05)$. Allowing for an attrition rate of 10%, approximately 400 women needed to be sampled. The first patient was selected randomly from the first group of eight women. The inclusion criteria were female patients ≥ 18 years and women who had a partner. Those too ill to participate or unable to consent were excluded. A total of 403 women were approached to participate in this study. Three women refused, citing time constraints, a response rate of 99.3%. Data were collected from January 1 to March 31, 2014.

Data-collection tools

(1) The WAST–long had been translated into isiZulu and Sesotho and verified by the Wits Language School.

(2) The WAST–short has been significantly correlated with the WAST–long in a previous study (Spearman's r = 0.86, $p < 0.001$).[18]

Ethical considerations
Data were coded with no personal identifiers. Ethics approval was received from the Human Research Ethics Committee (Medical), University of the Witwatersrand. Permission to conduct the study was received from the hospital CEO.

Data analysis
Descriptive statistics was carried out for the demographic data. The characteristics (sensitivity, specificity, positive and negative predictive value, positive and negative likelihood ratio) of the two-question screening tool were analysed.

Analytical statistics involved tests of association between socio-demographic variables and operating characteristics of the WAST–short, using the chi-square test of independence. The statistical analyses were done using STATA® software (StataCorp LP, College Station, TX, USA).

Table 1: Participants according to age groups and IPV result

Age group	19–29	30–39	40–49	50–59	60–69	70–79	Total
Positive result for IPV screening	7 (11.9%)	8 (13.6%)	12 (20.3%)	24 (40.7%)	6 (10.2%)	2 (3.4%)	59
Negative result for IPV screening	72 (21.1%)	64 (18.8%)	79 (23.2%)	74 (21.7%)	41 (12%)	11 (3.2%)	341
Total, n (%)	79 (19.8%)	72 (18%)	91 (22.8%)	98 (24.5%)	47 (11.8%)	13 (3.3%)	400 (100%)

Results

Socio-demographic characteristics of participants and their partners

(a) Age

Participants
The mean age was 44.6 years ± 13.8 (range 19; 76). As shown in Table 1, there were peaks in the age groups 19–29 and 40–59 years.

Partners
The mean age was 48.4 years ± 14.5 (range 18; 93).

(b) Source of income

Participants
Many were employed (193; 48.3%); 78 (19.5%) of the participants were supported by their partners, 98 (24.5%) depended on social grants and 31 (7.8%) were supported by members of their family.

Partners
Most of the participants' partners were employed (301; 75.3%) while 59 (14.8%) depended on social grants, 7 (1.8%) were supported by other family members while 33 (14.8%) were unemployed.

(c) Education
Most of the participants and their partners had a secondary level of education (55.3% and 53.5%, respectively) (Table 2).

(d) Housing
Most of the participants lived in formal housing (319; 79.8%), while 81 (20.2%) lived in informal housing.

(e) Language
Many participants were Sesotho speaking (120; 30%). Most participants were bilingual (55.1%). The English questionnaire was answered by 226 (56.5%), the Sesotho questionnaire by 144 (36%), and the isiZulu questionnaire by 30 (7.5%) participants.

(f) Relationship status
Most women were married (203; 50.8%), a substantial proportion either had a steady partner not living with them (101; 25.3%) or living with them (96; 24%). The average length of relationships was 14.8 years (±12.7). The average number of children per participant was two.

Results on WAST–short
The WAST–short indicated that 59 (15%) of the 400 participants suffered IPV.

Table 2: Level of education

Level of education	Participants	Partners
No formal schooling	11 (2.8%)	14 (3.5%)
Primary (until grade 6)	57 (14.3%)	43 (10.8%)
Secondary (Grades 7–11)	221 (55.3%)	214 (53.5%)
Grade 12	105 (26.3%)	119 (29.8%)
Post-secondary education (degree/diploma)	6 (1.5%)	10 (2.5%)
Total	400 (100%)	400 (100%)

Analysis of those positive for IPV – WAST–short

(a) Age
The mean age was 48.6 years ± 12.97 (range 21; 75). Most participants were aged between 50 and 59 years 59 (40.7%). There was no significant association between the IPV result and the age group of the participants ($p = 0.074$).

(b) Income
Many (28; 47.5%) were employed, 17 (28.8%) received a social grant, and 18.6% received support from their partners. Among participants who had a negative result for IPV screenings, 48.4% were employed (Table 3).

There was no statistically significant association between a participant's source of income and the IPV screening result ($p = 0.789$).

Partners
A majority of participants' partners (301; 75.3%) were employed (see Table 3). There was no association between IPV and partner's source of income ($p = 0.544$).

(c) Education
Of the participants 52.5% (32/59) who had a positive result for IPV screening and 55.7% of those who had a negative result on the WAST–short had received secondary education (Table 4). There was no statistically significant association between a participant's level of education and her IPV screening result ($p = 0.648$).

There was no statistically significant association shown between a participant's level of education and IPV ($p = 0.099$).

Partners
A secondary level of education had been attained by 54.2% of partners of participants who had a positive IPV result (see Table 4). There is a significant association between a woman's result for IPV screening and her partner's level of education ($p = 0.018$). For participants with a negative result for IPV screening, more partners had Grade 12 and above level of education as compared with those who were IPV positive. Low levels of partner education were significantly associated with IPV among these women.

Table 3: Source of income and IPV

Source of income	Employed	Social Grant	Supported from partner	Support from Family	Total
Positive result for IPV (participant)	28 (47.5%)	17 (28.8%)	11 (18.6%)	3 (0.1%)	59
Negative result for IPV (participant)	165 (48.4%)	81 (23.8%)	67 (16.8%)	28 (8.2%)	341
Total	193 (48.3%)	98 (24.5%)	78 (19.5%)	31 (7.8%)	400 (100%)
Positive result for IPV (partner)	49 (83%)	0	6 (10.2%)	4 (6.8%)	59
Negative result for IPV (partner)	252 (73.9%)	7 (2.1%)	53 (15.5%)	29 (8.5%)	341
Total	301 (75.3%)	7 (1.8%)	59 (14.8%)	33 (8.3%)	400 (100%)

Table 4: Level of education and IPV

Level of education		No formal education	Primary until Grade 6	Secondary: Grades 7–11	Grade 12	Post-secondary education
Positive result, *n* (%)	Participants	2 (3.4%)	12 (20.3%)	31 (52.5%)	13 (22%)	1 (1.7%)
	Partners	6 (10.2%)	8 (13.6%)	32 (54.2%)	11 (18.6%)	2 (3.4%)
Negative result for IPV screening	Participants	9 (2.6%)	4.5 (13.2%)	190 (55.1%)	92 (27%)	5 (15%)
	Partners	8 (2.3%)	35 (8.8%)	182 (53.4%)	108 (31.7%)	8 (2.5%)

Table 5: Housing, language used to complete the questionnaire and relationship status vs. IPV result

Factor	Type of housing		Language of questionnaire			Relationship Status		
	Formal	Informal	English	Sesotho	isiZulu	Married	Steady Partner	Living with Partner
Positive for IPV screen	46 (78%)	13 (22%)	35 (59.5%)	23 (39%)	1 (1.7%)	34 (57.6%)	12 (20.3%)	13 (22%)
Negative for IPV screen	273 (80%)	68 (19.9%)	191 (56%)	121 (35.5%)	29 (8.5%)	169 (49.6%)	89 (26.1%)	83 (24.3%)

Table 6: Comparison of the two-question screening tool (WAST–short) and WAST–long

WAST–long WAST–short	Total score ≥ 13	Total score < 13	Total
Positive	58	1	59
Negative	71	270	341
Total	129	271	400

(d) Housing
Of the participants who were positive for IPV, 22% were not living in formal housing (Table 5). There was no significant association between a participant's type of housing and her screening result (*p* = 0.712).

(e) Language
Most participants answered the English questionnaire (see Table 5). Further evaluation of the data for the 59 participants who had a positive result for IPV screening showed that 59.3% (35/59) of them had answered the questionnaire in English.

(f) Relationship status
Of the participants with a positive result for IPV, 34 (57.6%) were married (see Table 5); the mean length of relationship for the participants who screened positive was 15.75 years (±12). No statistically significant association was shown between a positive result for IPV screening and relationship status (*p* = 0.49).

Comparison between WAST–short and WAST–long results
The screening properties of the WAST–short in relation to the result on the WAST–long were as follows.

(a) Operating characteristics
The WAST–short identified 58 of the 129 participants with a positive WAST–long score. The comparison between the WAST–short and WAST–long results is shown in Table 6.

The two-question screening tool had the following characteristics for this sample population (see Table 6).

Sensitivity = 58/(58+71) = 45.2%

Specificity = 270/(1+270) = 99.6%

Positive predictive value (PPV) = 58/(58+1) x 100 = 0.98(98%)

Negative predictive value (NPV) = 270/(270+71) x 100 = 0.79 (79%)

Prevalence of IPV = (58+71)/400 = 0.32 (32%)

LR (+) = sensitivity/(1–specificity) = 113

LR (–) = (1–sensitivity)/specificity = 0.55

(e) False negatives
From Table 6 it can be seen that 71 participants had false negative results.

Language
A significant association was shown between the language of the answered questionnaire and the participant's response to screening Question 2, i.e. how do you and your partner work out arguments? (*p* = 0.008).

(a) Analysis of responses to WAST–long
More participants with WAST–long scores ≥ 13 responded positively (i.e. answered 'a lot of tension in the relationship') to Question 1 than those who answered 'great difficulty in resolving arguments' to Question 2 (72/129 versus 62/129).

Further analysis of the responses to Questions 1 and 2 (Table 7) showed that 31% of the participants (40/129) answered 'some tension' and 'some difficulty' to the screening questions.

(b) Frequency table for WAST–long score ≥ 13 and screening results (WAST–short)
Of the participants who scored ≥ 13 on the WAST–long (*n* = 129), 59 women had 'a lot of tension' and 'great difficulty' and were therefore regarded as having a positive result for IPV screening. However, one of these was a false-positive result.

As shown in Table 7, the majority (89.7%) of women in the subgroup of participants who screened positive had attained WAST–long scores ≥ 16. Of the 71 women who screened negative on WAST–short, 79% (56/71) had obtained a WAST–long score of ≤ 15 (see Table 8).

Table 7: Cross-break: responses to screening questions among participants with WAST–long scores ≥ 13 (n = 129)

Question 1		Question 2			Total (n)
		No difficulty (n)	Some difficulty (n)	Great difficulty (n)	
	No tension (n)	3	4	0	7
	Some tension (n)	6	40	4	50
	A lot of tension (n)	2	12	58	72
Total (n)		11	56	62	129

Post hoc analysis

Post hoc analysis of the results was undertaken to establish whether the sensitivity of the screening tool could be enhanced by using different criteria.

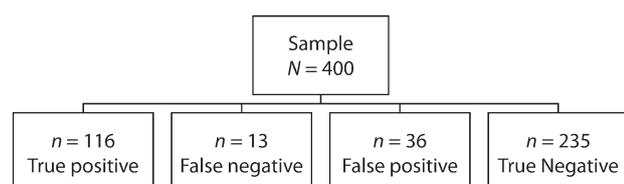Analysis of outcome for WAST–short using scoring system of WAST–long

Applying the WAST–long scoring system to the two-question screening tool meant that the extreme answers, 'a lot of tension' and 'great difficulty', would be scored as 3; answers with 'some' as 2; and answers with 'no' as 1; this meant the rating system yielded totals of 6, 5, 4, 3 and 2. By changing the cut-off scores for the two-question screening tool, an increase in sensitivity was shown for the total scores but with an associated decrease in specificity (Table 9). For this scoring system, the cut-off score of 4 revealed a result for sensitivity of 89.9% and associated specificity of 86.7%. This implies that 75 women instead of 59 would screen positive for IPV. However, other studies and the validation between WAST–long and WAST–short have been done with a cut-off score of 6.

Table 8: Results for participants who scored ≥ 13 on WAST–long (n = 129)

WAST–long total score	Screen negative with WAST–short, n = 71	Screen positive with WAST–short, n = 58	Number of participants (n = 129)
13	19 (26.8%)	2 (3.4%)	21 (16.3%)
14	26 (36.6%)	3 (5.2%)	29 (22.5%)
15	11 (15.5%)	1 (1.7%)	12 (9.3%)
16	5 (7%)	5 (8.6%)	10 (7.8%)
17	5 (7%)	5 (8.6%)	10 (7.8%)
18	3 (4.2%)	7 (12.1%)	10 (7.8%)
19	0	4 (6.9%)	4 (3.1%)
20	1 (1.4%)	4 (6.9%)	5 (3.9%)
21	1 (1.4%)	7 (12.1%)	8 (6.2%)
22	0	10 (17.2%)	10 (7.8%)
23	0	4 (6.9%)	4 (3.1%)
24	0	6 (10.3%)	6 (4.7%)
Total	71 (100%)	58 (100%)	129 (100%)

Table 9: Analysis of cut-off scores for WAST–short

Cut-off score	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	LR (+)	LR (–)
5	57.4	98.9	96.1	83.1	52.6	0.43
4	89.9	86.7	76.1	94.8	6.8	0.12
3	97.7	63.5	55.7	98.3	2.7	0.04

As shown in Figure 1, using the cut-off score of 4 yielded an increase in the number of participants with a positive result for screening, but with an increase in the number of false positives.

Discussion

IPV is a major health problem among women attending this facility with a high prevalence (32.25%). This confirms IPV is a growing public health burden.[19] The high prevalence rate can be partially explained by the 'Sanctions and Sanctuary' framework, which hypothesises that in societies in which women's status is in transition, IPV reaches peak levels.[20] Societal norms of dominant patriarchal values and traditional gender roles in SA are being challenged by the passing of legislation to empower women. Thus, violence may be used reactively by men to enforce male authority.[20]

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          ┌─────────────┐
          │   Sample    │
          │   N = 400   │
          └─────────────┘
   ┌──────────┬──────────┬──────────┐
┌────────┐┌────────┐┌────────┐┌────────┐
│n = 116 ││n = 13  ││n = 36  ││n = 235 │
│True    ││False   ││False   ││True    │
│positive││negative││positive││Negative│
└────────┘└────────┘└────────┘└────────┘
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Figure 1: Distribution of participants on comparing WAST–short and WAST–long results using the cut-off score of 4.

Data on the full extent of all forms of IPV in South Africa are not available. Although the number of reported cases is very high, many cases go unreported. The incidence of battery or domestic violence is particularly hard to measure because the police do not keep separate statistics on assault cases perpetrated by husbands or boyfriends. In 2010, 12 093 women in Gauteng reported to the police an assault by an intimate partner.[21]

IPV is the most common form of violence experienced by South African women, according to the South African Stress and Health (SASH) survey.[22]

Jewkes *et al.* found over 97% of the black African women interviewed had experienced physical violence at some point.[23] In that study, out of that 97%, over 95% had experienced physical violence within the past year.[23]

The World Health Organization reports that 60 000 women are victims of IPV in South Africa.[24] On average, the women who were abused came from a lower secondary education background and were unemployed.[25] In some areas of the country 28.4% of women reported being abused. In 2013, 50% of the women surveyed reported that they had suffered emotional and verbal abuse. Of the women who were in violent relationships, 45.9% reported injury.[25] Nearly half of the female murders that happened in 1999 in South Africa resulted from IPV. The percentage of women who reported experiencing domestic violence at least once in their lifetime is as high as 59%.[6,25]

In Soweto 30.1% of women reported physical or sexual assault within the previous 12 months. The lifetime prevalence of a single episode of physical and/or sexual assault by a partner was 55.5%, while the prevalence of more than one incident was reportedly 42.8%. Thus the findings from our study confirm other South African studies done in similar settings that the prevalence of IPV is high and screening for IPV is essential.[26]

The WAST–short detected that 58 (15%) of all the participants had experienced IPV during the past 12 months. The screening tool was able to detect 45.2% of the women with IPV and 99.6% of the women who were negative for IPV. The high PPV of 98% indicates that those who screen positive for IPV using the WAST–short will have a positive WAST–long score ≥ 13; this value correlates with high specificity and the positive likelihood ratio of the screening tool. The NPV indicates that there is a 21% probability that those screening negative will have a positive WAST–long score, i.e. truly have IPV; the negative likelihood ratio and post-test probability concur with this finding. Thus due to the low sensitivity and low NPV, the two-question screening tool (WAST–short) would be unable to rule out IPV conclusively.

It is difficult to make direct comparisons between the current study's findings and previous studies that have used the WAST–short,[11] because study designs were different. Fogarty *et al.* discussed the potential of lower sensitivity of the screening tool if applied to a primary care setting.[9] This hypothesis was based on their finding that abused women in the community health centre scored lower than women in the abused shelter group, and this stemmed from the women's self-perceptions of abuse.[11,27,28] No previous studies using the WAST have demonstrated a cultural impact on the sensitivity of the screening tool.

For the difference in sensitivity as compared with the findings from other studies one has to take into account that the WAST questionnaire was developed for an English-speaking population,[9] thus possibly reflecting violence as defined in Western societies. The nuanced description of IPV as conveyed in the WAST–short might not be sensitive enough to detect all cases of IPV in this PHC setting.[11,28]

The screening questions offer an enquiry into the general state of a person's relationship. In this study, the WAST–short was only able to elicit a clear positive result from participants who were experiencing severe forms of IPV. The analysis of the WAST–long scores confirmed this. IPV detected by the WAST–long included milder forms of abuse. Among the IPV positive group, 79% of the participants had screened negative on the WAST–short, which is a serious discrepancy.

Further it can also be hypothesised that some participants in this study might have interpreted the indirect questions of the WAST–short in a compartmentalised manner, rather than in relation to their experience of abuse. This may imply that participants in this study found it difficult to express or expose their experiences of abuse with only the two screening questions. This may be due to societal and cultural influences. Discussion of problems within an intimate relationship might be a subject that some women who are experiencing such tension do not wish to approach, which possibly implies influence at the individual level. There is an acquired inability of these women to express their emotions due to fear of provoking retaliation by the abusive partner.

Women who screened positive for IPV had partners with lower education levels than those women who screened negative for IPV. A WHO multicultural study showed protection from IPV occurred when both partners completed secondary education. The study showed that there was an increased risk of IPV when there is discordancy in the couple's level of education.[29] A curvilinear relationship has also been used to describe the relationship between empowerment — including education — and risk reduction for IPV.[30]

The educational level of spouses is known to be negatively associated with IPV.[31,32] In rural areas of Bangladesh husband's education beyond the tenth grade was associated with a decreased risk of violence. In urban areas husband's education beyond the sixth grade had a protective effect.[33] A study in India found an inverse relation between lifetime or recent IPV and a woman's educational attainment.[31] Moreover, higher educational levels of husbands were associated with lower odds of IPV, which means that a low-educated husband is a risk factor for spousal violence.[33,34] Muthal-Rathore *et al.* indicated that one of the socio-demographic variables in association with domestic violence was the husband's education.[35] According to the findings of the above-mentioned studies improving education is likely to be one of the key interventions to reduce IPV.

Although the WAST–long is a validated tool to detect IPV and has correlated well with the ARI, the influence of the participants' interpretation of the screening questions in this setting has not previously been accounted for.

Conclusion

On evaluation of the accuracy of the screening tool, the WAST–short lacks sufficient sensitivity, and therefore is not an ideal screening tool in this primary care ambulatory setting. The low sensitivity of the WAST–short in this study requires further validation and reliability in the OPD setting. The low sensitivity can be attributed to the participants' understanding of the screening questions, which utilise Eurocentric and nuanced definitions of IPV.

Supplementary material

The supplementary material for this paper is available online at http://dx.doi.org/10.1080/20786190.2016.1223796.

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