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## Screening for Interpersonal Violence: Missed Opportunities and Potential Harms

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### Abstract

**Introduction:** Screening for interpersonal violence is used in health care settings to identify patients experiencing violence. However, using unvalidated screening tools may misclassify patients' experience with violence. The Center for Medicare & Medicaid Innovation adapted a previously validated intimate partner violence screening tool for use in assessing interpersonal

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violence and retained the tool's original scoring rubric, despite the new tool's broader scope. This study evaluated the scoring system for detecting safety concerns.

**Methods:** Cross-sectional survey of a convenience sample of adult patients and caregivers of pediatric patients at seven primary care clinics and four emergency departments (2018–2019). Surveys included the adapted four-item Hurt Insult Threat Scream (HITS) tool. Questions are scored by frequency on a Likert scale (1=“Never”; 5=“Frequently”). Scores 11–20 are considered “positive” for safety concerns. Two-sided Fisher's exact tests were used for descriptive analyses. Data analyses occurred 2019–2020.

**Results:** Of 1,014 participants, 66 (6.5%) reported any frequency of physical violence. Of these, 54/66 (81.8%) did not reach the threshold score of 11. 93/1014 (9.2%) reported any frequency of physical violence or being threatened with harm; 76/93 (81.7%) scored <11.

**Conclusions:** Using the original scoring criteria for the adapted HITS, >80% of participants reporting physical violence did not screen positive for potential safety concerns. The scoring criteria did not reliably identify participants experiencing or at high risk for violence. To improve patient safety, the adapted HITS scoring rubric should be updated based on stakeholder input and additional validation studies.

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## Introduction

Adverse health outcomes are strongly linked to intimate partner violence in women.<sup>1,2</sup> The U.S. Preventive Services Task Force (USPSTF) and multiple professional organizations therefore recommend screening reproductive age women for intimate partner violence in health care settings.<sup>1,3</sup> To facilitate screening, USPSTF recommends several tools that have undergone psychometric testing.<sup>1,4,5</sup> However, none have been validated for identifying risk for interpersonal violence (i.e. risk for violence more broadly, including an intimate partner). Implementing unvalidated screening tools may misclassify patients' experiences of violence and result in missed intervention opportunities.

Unlike intimate partner violence, no USPSTF guidelines recommend screening for interpersonal violence.<sup>1</sup> USPSTF found insufficient evidence to support screening for elder abuse or violence in vulnerable populations.<sup>1</sup> However, an analysis of the 2017–2018 National Survey of Healthcare Organizations found interpersonal violence was the social risk most commonly assessed in many health care settings.<sup>6</sup> This finding is difficult to interpret because, although not synonymous, the terms domestic violence, intimate partner violence, and interpersonal violence are often conflated.<sup>7</sup> Furthermore, screening tools to assess various forms of violence have been adapted primarily from intimate partner violence tools without additional psychometric testing.<sup>8</sup>

The Center for Medicare and Medicaid Innovation (CMMI) developed the Accountable Health Communities (AHC) Health-Related Social Needs Screening Tool to evaluate patients for unmet social needs.<sup>8</sup> The tool screens five core domains including housing instability, food insecurity, transportation problems, utility needs, and safety concerns. CMMI adapted the Hurt Insult Threat Scream (HITS) tool, originally designed to detect intimate partner violence in women,<sup>9</sup> to screen for interpersonal violence across all gender

identities. In this study, we analyzed the adapted HITS to evaluate how the original tool's scoring criteria impacts the ability to detect safety concerns.

## Methods

We conducted a multi-site cross-sectional survey of adult patients or caregivers of pediatric patients (2018–2019). Eligibility, recruitment, and study sample have been described previously.<sup>10</sup> The study was approved by the University of California, San Francisco IRB.

## Measures

The primary outcome measure, reporting any frequency of verbal or physical violence, was assessed using the CMMI-adapted HITS screening tool. USPSTF recommends HITS to screen for intimate partner violence in reproductive age women.<sup>1</sup> HITS includes four questions, one on physical violence and three on verbal violence (Table 1). Questions are scored based on frequency of experience (1="Never"; 5="Frequently"). Total scores range 4–20. A scoring rubric for the original tool was validated in adult female survivors of intimate partner violence; scores  $\geq 11$  signal a strong likelihood of intimate partner violence.<sup>9</sup>

In 2016, as part of its AHC demonstration project, CMMI broadened HITS to include interpersonal violence.<sup>8</sup> The original questions' stem asks about frequency of violence by a partner: "How often does your partner...." The adapted measure asks, "How often does anyone, including family or friends...." (Table 1). CMMI recommends using the original HITS scoring cutoff, noting "a score of 11 or more ... shows that the person might not be safe."<sup>8</sup> This scoring cutoff has not been validated using the modified question stems. HITS has been further validated in other settings, such as the Veterans Health Administration, and optimal cutoff scores were lower than the original scoring cutoff of 11.<sup>11</sup> Other studies in specific populations, including men and Spanish-speaking populations, both of whom are eligible for participation in the demonstration project, have shown similar findings.<sup>12,13</sup>

Additional measures in this study included participant demographics, health care-based discrimination, and clinician trust.<sup>10</sup> Trust and prior discrimination were included given their documented effects on violence reporting.<sup>14,15</sup>

## Statistical Analyses

Two-sided Fisher's exact tests described patterns of 1) reporting any frequency of physical violence, 2) reporting any frequency of verbal violence, and 3) scoring  $<11$  on the adapted HITS. All data analyses were conducted using Stata/SE 15.0 (2019–2020).

## Results

Of 1,014 participants (Figure S1), 66 (6.5%) reported any frequency of physical violence; 54/66 (81.8%) scored  $<11$  (Figure 1a). Among those below the threshold, 3/54 (5.6%) reported "fairly often" or "frequently" being physically hurt, while 14/54 (25.9%) reported "sometimes."

394/1014 (38.9%) reported any frequency of verbal violence; 376/394 (95.4%) scored <11 (Figure 1b). 1/376 (0.3%) reported “fairly often” being threatened with harm, while 24/376 (6.4%) reported “fairly often” or “frequently” being insulted or screamed at. 93/1014 (9.2%) reported any frequency of physical violence or being threatened with harm; 76/93 (81.7%) scored <11.

Participants reporting any frequency of physical or verbal violence reported significantly lower trust in their clinicians and higher rates of experiencing discrimination in a health care setting. Table 2, Tables S1–S2 include additional participant level factors associated with reporting different forms of violence. In stratified analyses, rates of reporting any physical or verbal violence were more common among younger women and younger men, though differences were not statistically significant (Table S3). Threats of harm and physical violence co-occurred in approximately 50% of participants reporting either form of abuse (Table S4). Rates of reporting fairly often/frequently being screamed/cursed at or insulted were low (Table S1).

## Discussion

Applying the original HITS scoring criteria, 82% of participants reporting any frequency of physical violence did not screen positive for a safety concern. The original scoring system equally weights verbal and physical violence but has only one question on physical violence, which may contribute to the substantial under-detection of safety concerns.<sup>2</sup> Given the potential for health care-based screening and intervention to facilitate safety planning,<sup>1,2</sup> it is appropriate to revisit whether and to what extent a specific cutoff point should be used in the adapted HITS.

While we cannot verify participants’ experiences of abuse, these findings are concerning because patient disclosure of violence that does not lead to clinical follow-up is not only an immediate safety risk<sup>1,2</sup> but also may amplify patient distrust in the health care system and decrease patient responsiveness to future screening. In our sample, participants who reported verbal or physical violence already had lower baseline trust in their clinicians and higher reported rates of health care-based discrimination than respondents who did not report any violence. For health care settings implementing the adapted HITS tool, we recommend caution in relying on screening scores to guide follow-up and/or intervention. At a minimum, we recommend following-up reports of physical violence or being threatened with harm, regardless of score. Stakeholder input and both reliability and validity testing are needed to increase the utility of screening and to minimize the potential for exacerbating distrust.

## Limitations

This study has several limitations. Findings are based on participant self-report and therefore subject to response and social desirability bias. Due to study design and lack of a recognized gold standard tool for interpersonal violence screening, we were unable to assess the true sensitivity or specificity of the adapted HITS. The adapted tool was professionally translated into Spanish.<sup>10</sup> We are not aware of any validity or reliability testing of a Spanish version, which may impact study results.

## Conclusions

There are potential negative consequences associated with adapting an existing screening tool for new populations and contexts. Our findings highlight how the adapted HITS tool and recommended scoring criteria failed to identify many participants with significant safety risks. To improve patient safety and avoid missing intervention opportunities, stakeholder input and additional psychometric validity testing is needed. In the interim, our findings suggest the scoring rubric for a positive screen should be modified to include all patients reporting major safety concerns, including any physical and/or threats of violence.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## Conflicts of interest:

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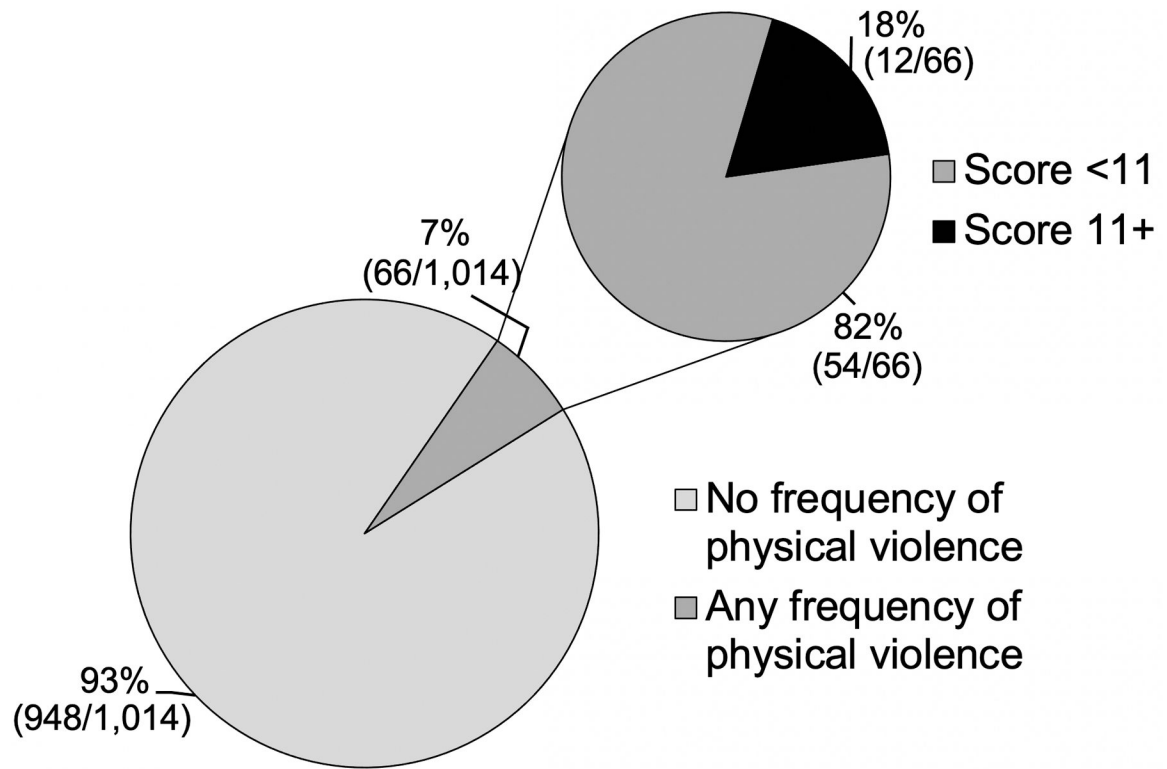
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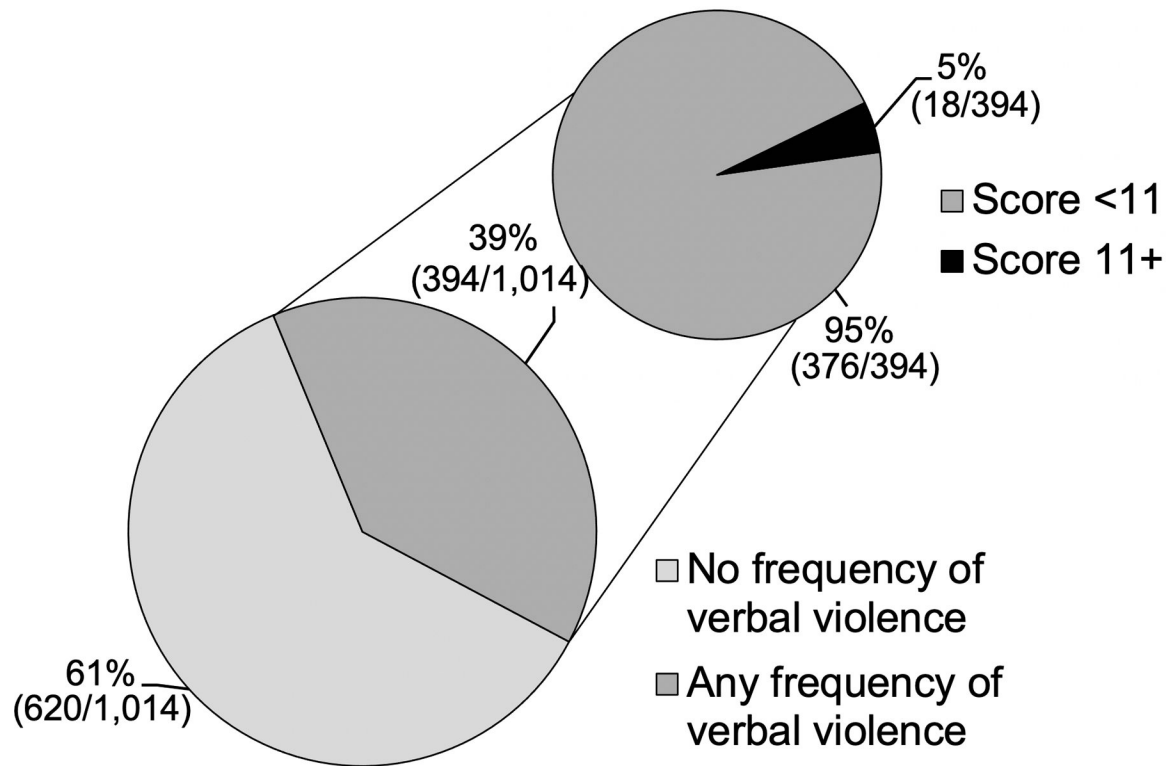
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**Figure 1a.** Overall screening results for physical violence among 1014 adult participants using the adapted HITS screener



**Figure 1b.** Overall screening results for verbal violence among 1014 adult participants using the adapted HITS screener

**Table 1.**HITS screening tool: comparing original vs. adapted questions<sup>a,b</sup>

Original HITS	Adapted HITS
How often does your partner physically hurt you?	How often does anyone, including family and friends, physically hurt you?
How often does your partner insult or talk down to you?	How often does anyone, including family and friends, insult or talk down to you?
How often does your partner threaten you with physical harm?	How often does anyone, including family and friends, threaten you with harm?
How often does your partner scream or curse at you?	How often does anyone, including family and friends, scream or curse at you?

<sup>a</sup> Answer options and associated scoring for both tools: Never (1), Rarely (2), Sometimes (3), Fairly often (4), Frequently (5)

<sup>b</sup> Neither the original tool nor the CMMI adaptation specified a timeframe.

Characteristics of 1014 participants, stratified by reporting any frequency of violence, and total scores 11

Table 2:

Participant characteristics	Total		Any verbal violence <sup>a</sup> N=344 (34%)		No verbal violence N=670 (66%)		Fischer's exact p value		Any physical violence N=66 (7%)		No physical violence N=948 (93%)		Fischer's exact p value		HITS Score 11 <sup>b</sup> N=18 (2%)		HITS Score <11 N=996 (98%)		Fischer's exact p value		
	N	N (%)	N	N (%)	N	N (%)	Fischer's exact p value	N	N (%)	N	N (%)	N	N (%)	Fischer's exact p value	N	N (%)	N	N (%)	Fischer's exact p value		
<b>Participant characteristics</b>																					
Age <sup>c</sup> (years) (N <sup>d</sup> =1000)																					
18-44	547	203 (37.1)	344 (62.9)	39 (7.1)	508 (92.9)	0.72	10 (1.8)	537 (98.2)	0.46												
45-64	294	127 (43.2)	167 (56.8)	17 (5.8)	277 (94.2)		7 (2.4)	287 (97.6)													
65	159	60 (37.7)	99 (62.3)	9 (5.7)	150 (94.3)	0.22	1 (0.6)	158 (99.4)													
Sex <sup>c</sup> (N=996)																					
Female	705	249 (35.3)	456 (64.7)	42 (6.0)	663 (94.0)	0.001	11 (1.6)	694 (98.4)													
Male	291	136 (46.7)	155 (53.3)	23 (7.9)	268 (92.1)		7 (2.4)	284 (97.6)													
Race/Ethnicity (N=957)																					
Non-Hispanic White	353	148 (41.9)	205 (58.1)	16 (4.5)	337 (95.5)	0.07	5 (1.4)	348 (98.6)													
Non-Hispanic Black	208	84 (40.4)	124 (59.6)	12 (5.8)	196 (94.2)		3 (1.4)	205 (98.6)													
Hispanic	314	98 (31.2)	216 (68.8)	30 (9.6)	284 (90.4)		4 (1.3)	310 (98.7)													
Non-Hispanic Other/ Multiple Races	82	39 (47.6)	43 (52.4)	4 (4.9)	78 (95.1)	0.007	6 (7.3)	76 (92.7)													
Preferred Language (N=1014)																					
English	844	354 (41.9)	490 (58.1)	41 (4.9)	803 (95.1)	<0.001	16 (1.9)	828 (98.1)													
Spanish	170	40 (23.5)	130 (76.5)	25 (14.7)	145 (85.3)		2 (1.2)	168 (98.8)													
Education (N=1002)																					
<12 years	175	60 (34.3)	115 (65.7)	20 (11.4)	155 (88.6)	0.007	4 (2.3)	171 (97.7)													
12 years	827	328 (39.7)	499 (60.3)	46 (5.6)	781 (94.4)		14 (1.7)	813 (98.3)													
Income (N=849)																					
\$0-\$10,000	220	104 (47.3)	116 (52.7)	20 (9.1)	200 (90.9)	0.02	10 (4.6)	210 (95.4)													
\$10,001-\$25,000	184	78 (42.4)	106 (57.6)	16 (8.7)	168 (91.3)		3 (1.6)	181 (98.4)													
\$25,001-\$50,000	185	80 (43.2)	105 (56.8)	13 (7.0)	172 (93.0)		1 (0.5)	184 (99.5)													
\$50,001-\$75,000	81	42 (51.9)	39 (48.1)	3 (3.7)	78 (96.3)		1 (1.2)	80 (98.8)													
\$75,001	179	50 (27.9)	129 (72.1)	4 (2.2)	175 (97.8)	<0.001	0 (0.0)	179 (100.0)													

Participant type (N=1014)	Total N	Any verbal violence <sup>a</sup> N=344 (34%)		No verbal violence N=670 (66%)		Fischer's exact p value		Any physical violence N=66 (7%)		No physical violence N=948 (93%)		Fischer's exact p value		HITS Score 11 <sup>b</sup> N=18 (2%)		HITS Score <11 N=996 (98%)		Fischer's exact p value	
		N (%)	N (%)	N (%)	N (%)	Fischer's exact p value	N (%)	N (%)	N (%)	N (%)	Fischer's exact p value	N (%)	N (%)	N (%)	N (%)	Fischer's exact p value			
Adult patient	783	316 (40.4)	467 (59.6)	48 (6.1)	735 (93.9)	0.08	14 (1.8)	769 (98.2)	0.37	4 (1.7)	227 (98.3)	1.00							
Adult caregiver of pediatric patient	231	78 (33.8)	153 (66.2)	18 (7.8)	213 (92.2)	0.007	4 (1.7)	227 (98.3)	0.37	4 (1.7)	227 (98.3)	1.00							
Trust in clinician (N=978)																			
Complete (10)	502	176 (35.1)	326 (64.9)	30 (6.0)	472 (94.0)		11 (2.2)	491 (97.8)		11 (2.2)	491 (97.8)								
High (8-9)	287	119 (41.5)	168 (58.5)	13 (4.5)	274 (95.5)		1 (0.4)	286 (99.6)		1 (0.4)	286 (99.6)								
Medium-Low (1-7)	189	90 (47.6)	99 (52.4)	20 (10.6)	169 (89.4)		6 (3.2)	183 (96.8)		6 (3.2)	183 (96.8)								
Any experience prior discrimination within health care (N=998)																			
Yes	274	134 (48.9)	140 (51.1)	26 (9.5)	248 (90.5)		10 (1.4)	266 (97.1)		10 (1.4)	266 (97.1)								
No	724	256 (35.4)	468 (64.6)	40 (5.5)	684 (94.5)	<0.001	8 (2.9)	684 (97.1)	0.03	8 (2.9)	684 (97.1)	0.11							

Boldface indicates statistical significance (p<0.05)

<sup>a</sup>See Appendix Table S1 for participant characteristics stratified by responses to three individual verbal violence questions.

<sup>b</sup>See Appendix Table S2 for characteristics of participants reporting any physical or verbal violence, stratified by scores or <11.

<sup>c</sup>Rates of reporting any physical or verbal violence were more common in younger women and younger men, though differences were not statistically significant (Appendix Table S3).

<sup>d</sup>Number of participants with complete responses for each variable.