

Full Length Research Paper

Development and integration of IPV-4, a patient-reported screening instrument of intimate partner violence for primary and HIV care

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Received 13 September 2022; Accepted 8 November 2022

Intimate partner violence (IPV) is a significant and under-reported health problem. Legacy measures of IPV lack brevity and/or are relevant only to specific populations, which limit their usefulness for routine clinical care. We developed a brief patient-reported screening instrument of past-year intimate partner violence (IPV). We developed an item pool from validated IPV screening instruments, dimensionalized and winnowed its content to select candidate items. We conducted interviews with English and Spanish-speaking persons in HIV care in six U.S. primary care clinics to assess their comprehensibility, which informed the development of the four-item instrument (IPV-4). After integration into care we performed chart review for indication of IPV in the past 5 years to assess impact. We identified 68 items from 12 instruments and winnowed content within dimensions of physical, sexual, and psychological violence. We then presented 11 candidate items to PWH in interviews (n=45, 49% Spanish-language; mean age 45 years; 62% cisgender male, 33% cisgender female, 5% transgender female; 71% nonwhite). The resulting instrument was well-understood in English and Spanish and relevant across gender and sexual orientation. PWH (n=6415) completed the IPV-4 in clinical care settings; 9% reported any type of IPV and 5% reported physical and/or sexual violence. In chart notes of a single-site subset of PWH (n=1756), of those indicating physical and/or sexual violence on the IPV-4 with medical records available from the past five years (n=63), only 19% of PWH had prior notes indicating IPV in that time period. The IPV-4 is a brief, gender/sexual orientation-neutral, clinically relevant screening instrument that identifies and dimensionalizes past-year IPV present in 9% of PWH in routine care.

Key words: HIV care, intimate partner violence, patient-reported outcome measures.

INTRODUCTION

Intimate partner violence (IPV) is a significant and under-reported public health problem with a lifetime prevalence

of 1 in 5 women and 1 in 7 men having experienced severe physical violence (Centers for Disease Control,

2021b; Huecker et al., 2022; Morgan, 2021). IPV refers to “physical violence, sexual violence, stalking and psychological aggression by a current or former intimate partner” (Centers for Disease Control, 2021a). An “intimate partner” is defined as a current or former dating partner or spouse (Centers for Disease Control, 2021b). Lifelong consequences of IPV beyond injury and death include poor physical and mental health outcomes, as well as substance abuse (Centers for Disease Control, 2021b).

The prevalence of IPV among PWH in the U.S. is estimated to be higher than that reported for the general population. A national survey found 26% of PWH reported ever having experienced IPV, with 4% reporting IPV in the past 12 months. Rates of 12-month IPV were similar between those who identify as cisgender men or women (4.4 vs 4.5% respectively), with transgender-identified PWH reporting a higher rate at 7.7% (Lemons-Lyn et al., 2021). By sexual orientation, bisexual and heterosexual women with HIV showed the highest lifetime rates (52 and 35%, respectively), followed by gay men (28%); while current 12-month rates were highest among bisexual women and men, followed by gay men (15, 8, and 5%, respectively) (Lemons-Lyn et al., 2021).

IPV may be particularly common among PWH who use illicit drugs: one study found very high rates among female crack cocaine users (68%) and also among gay and bisexual men and transgender PWH (71%) (Kalokhe et al., 2012). IPV has also been associated with increased health care utilization and health care costs among sexual minority men (O’Cleirigh et al., 2018) and women (Valentine et al., 2015) and HIV status among sexual minority men (O’Cleirigh et al., 2018). Among cisgender male and female PWH, IPV has been associated with a negative impact on viral suppression (Fredericksen et al., 2021a; Hatcher et al., 2015), ARV adherence (Fredericksen et al., 2021a; Pantalone et al., 2018), substance use (Fredericksen et al., 2021), retention in care (Hatcher et al., 2015; Kalokhe et al., 2012; Pantalone et al.), depression (Fredericksen, 2021a), and HIV transmission risk behavior (Harkness et al., 2019; Kalokhe et al., 2012). IPV has also been associated with sexual risk for HIV among black MSM (Williams et al., 2015). Psychological violence, even in the absence of physical or sexual violence, has been associated with depression, substance use, and poor virologic outcomes among people with HIV (Fredericksen, Nance, et al., 2021a). These relationships underscore the importance of improving the availability and uptake of quality IPV screening and assessment to support health outcomes in community and primary care settings.

IPV is both under-addressed and inadequately

addressed in clinical care (Morse et al., 2012; Perone et al., 2022) likely in part due to barriers such as lack of provider training to effectively respond to IPV, lack of time, and lack of effective interventions (Kalra et al., 2021; Sprague et al., 2012). The use of IPV screening questionnaires is known to increase IPV identification (O’Doherty et al., 2014). Screening using an assessment of same-day electronic tablet-based patient-reported outcome measures (PROs) may greatly assist providers in identifying IPV. Tablet-based approaches are known to reduce social desirability bias (Adebajo et al., 2014) and significantly increase provider awareness for other difficult-to-disclose symptoms and behaviors such as depression, substance use, and inadequate medication adherence (Crane et al., 2017). Clinical assessments of PROs have been well-tolerated by patients and useful to providers (Fredericksen, Harding, et al., 2021b; Fredericksen et al., 2016; Jones et al., 2014; Sharma et al., 2016; Short et al., 2022; Stover et al., 2015).

While no “gold standard” exists for IPV measurement in clinical care settings for routine screening, multiple agencies including the World Health Organization have indicated best practices such as the use of a clear timeframe and inquiry into specific partner behaviors (Yount et al., 2022). Many legacy IPV measures were developed specifically for cisgender heterosexual female respondents, and/or use male pronouns to presume the perpetrator (Brown et al., 2000; Campbell, 1986; Glass et al., 2001; McFarlane et al., 1995; Smith et al., 1995). In addition, many IPV measures are lengthy, limiting the feasibility of their use in routine clinical care (Fitzsimmons, 2019 a). We developed a brief gender and sexual orientation-neutral brief IPV instrument to screen for IPV in clinical HIV care and other settings, based on literature and legacy item review and patient feedback. We implemented the scale in six primary HIV care clinics.

METHODOLOGY

Item pool development, categorization, and winnowing

In concordance with NIH-Patient Reported Outcomes Measurement Information System (PROMIS) protocols for instrument development (Cella et al., 2007), we developed an item pool of legacy IPV items based on literature review. We solicited assistance of health reference librarians to identify IPV measures developed or used in care since 1980. Our initial search included terms “intimate partner violence”, “domestic violence”, or “partner violence” and “screening” yielding 827 citations in PubMed. We scanned citations, excluding instruments from population-based surveys not intended for clinical care, instruments not in North American English or Spanish, instruments requiring interviewer administration, instruments not known to be used in clinical care and lacking evidence of reliability or validity testing, instruments

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based on something other than text (e.g., marking bodily harm on body maps), and instruments our team could not access after two attempts to contact authors. Two qualitative researchers (RF, EF) independently categorized candidate items using an open-coding process and achieved consensus on final fixed codes. Three reviewers independently (RF, EF, SB) winnowed items into a smaller pool, selecting the best among alternatives with similar content, using the PROMIS Qualitative Item Review (QIR) process (DeWalt et al., 2007). We reconciled discordance in QIR coding through group discussion (RF, EF, SB).

Cognitive interview study population and recruitment

All PWH over age 18 and willing/able to consent were eligible for participation in the cognitive interview. We recruited PWH at four U.S. clinics within the Centers for AIDS Research Network of Integrated Clinical Systems (CNICS): Fenway Community Health-Boston, MA; 1917 Clinic at the University of Alabama-Birmingham; Owen Clinic at the University of California at San Diego; and Madison Clinic at Harborview Medical Center/University of Washington-Seattle. We informed patients of their eligibility on-site while waiting for their scheduled provider visit. Human subject committees at each site approved all research activity.

Cognitive interview testing

We tested candidate items for comprehensibility among English- and Spanish-speaking PWH in their respective languages. Interviews were approximately 45 min; participants received \$25 compensation. We calculated the proportion of patients that comprehended each item and reviewed all items that were less-than-unanimously understood for opportunities to clarify.

Final development of IPV-4

We created the final version of the IPV-4 based on universal comprehensibility of items. During development, we faced the question of what aspects of IPV are most clinically relevant to identify, and in doing so, considered item content that a) threatened the patient's short-and long-term safety/well-being, and b) was not prone to misinterpretation, yielding 'false positive' results. With a focus on brevity to foster feasibility in clinical care settings, we selected one item to represent each dimension for physical and sexual violence, and two that represented distinct aspects of psychological violence: one for unwanted feelings of being trapped/controlled by a partner, and the other for fearing being harmed by a partner.

Analysis of value added to care

We integrated the IPV-4 into clinical care at the 4 cognitive interview sites, as well as two additional sites (Ward 86 at University of California-San Francisco/Zuckerberg Hospital, and University of North Carolina), as part of a routine ~10-min comprehensive clinical assessment of patient-reported outcomes (PROs) including depression, substance use, adherence, and others self-administered by patients on-site prior to seeing their providers. The CNICS clinical assessment of PROs has been fully described elsewhere (Crane et al., 2007; Fredericksen et al., 2012). If patients indicated physical or sexual IPV in the assessment, automated pager alerts notified health care team members in real time. Providers were notified of any indication of violence (including

psychological) by receiving summarized assessment results immediately prior to seeing the patient.

Selecting one CNICS site (UW), we identified the proportion of PWH reporting IPV overall and by IPV type using dates 6/6/16 through 11/6/19. We sought to better understand the impact that identification of IPV may have had on patient care by performing a chart review analysis. The objective was to determine the extent to which IPV identified by the IPV-4 was likely already known to providers or was adding new information. At this site, among all individuals who indicated IPV on the IPV-4, we examined medical record documentation 5 years prior to indication. Specifically, we examined documentation for any prior mention of IPV in outpatient chart notes from primary care, psychiatrists, psychologists, social work/case managers, and emergency department visit notes, dating back 5 years from the date IPV was indicated on the IPV-4. We tracked whether any sexual, physical, or threatening IPV was identified in the chart notes, and whether an intervention or plan was made.

RESULTS

Item pool development, categorization, winnowing, and selection for cognitive interviews

We identified 68 items from 12 instruments for three IPV dimensions: psychological, physical, and sexual violence. We further subdivided codes of psychological violence into two categories: unwanted attempts by a partner to assert control over the patient's actions, and partner behavior that incites patients' fear for their safety. In some cases, we combined items that were similar to more fully describe the concept; for example, in the case of physical violence, we combined items describing impact (e.g., hit/kick/punch) rather than asking these separately. Winnowing resulted in a pool of 11 distinct legacy and adapted legacy candidate items with representation across all dimensions. To minimize patients' burden, we formatted items to conform to a 'yes/no' response option. The items were extracted from the following IPV instruments: Constructs of IPV for Gay and Bisexual Men (Stephenson et al., 2013), Fenway Community Health IPV Measure, Danger Assessment (Campbell, 1986; Campbell et al., 2009), Humiliation, Afraid, Rape, Kick (HARK)(Sohal et al., 2007), Hurt, Insult, Threaten, and Scream (HITS) (Sherin et al., 1998), Ongoing Abuse Screen (Ernst et al., 2002), and the Women Abuse Screening Tool (WAST) (Brown et al., 2000). Table 1 shows candidate cognitive interview items, their origins, and the IPV dimension each represents.

Cognitive interviews

We interviewed 23 English-speaking and 22 Spanish-speaking PWH (Table 2). Of the latter, 5 interviews were conducted as secondary interviews testing comprehensibility of slightly revised Spanish items.

Table 1. Cognitive interview candidate items.

In the past year, did someone you know...	IPV content area
Control where you go, who you talk to, or how you spend your money?	Control
Prevent you from communicating with or seeing your friends/family/co-workers?	Control
Monitor or demand access to your cell phone, email, social networking sites, finances, or spending?	Control
Hit, kick, punch, slap, shove, or otherwise physically hurt you?	Physical violence
Scream, yell, or curse at you?	Psych violence
Threaten to hurt you?	Psych violence
Make you feel afraid that they would harm you?	Psych violence
Make you feel isolated, trapped, or like you were walking on eggshells in the relationship?	Psych violence/control
Humiliate or emotionally abuse you?	Psych violence
Abuse you sexually?	Sexual violence
Pressure or force you to do something sexual that you didn't want to do?	Sexual violence

Source: Authors (2022).

Table 2. Demographics of cognitive interview participants.

Parameter	No. (%)
Total	45 (100%)
Present sex	
Male	28 (62%)
Female	15 (33%)
MTF transgender	2 (5%)
Race/ethnicity	
African-American, non-Latino	8 (18%)
Latino/Hispanic, any race	24 (53%)
White, non-Latino	13 (29%)
Language	
English	23 (51%)
Spanish	22 (49%)
Years since diagnosis	
0-5	10 (22%)
>5	35 (78%)
Age	
18-30	5 (11%)
30-39	9 (20%)
40-49	16 (36%)
>50	15 (33%)

MTF = male to female (transgender).
Source: Authors (2022).

Cognitive interviews

Cognitive interview results are organized by dimension.

Physical violence: The sole composite physical violence item, which assesses whether a partner “hit, kicked, punched, slapped, shoved, or otherwise physically hurt” the patient, was clearly understood by all English-speaking

patients. Among Spanish speakers, however, some of these verbs were experienced as redundant. On the advice of native-Spanish speaking patients and team members, the Spanish version of the item was changed to use fewer verbs (“lo/a golpeó, pateó, o lastimó físicamente de alguna forma,” excluding the specific verbs for punch, slap, and shove) while still covering the English versions of the concepts.

Sexual violence: We tested two separate sexual violence items: one querying sexual abuse by a partner the other asking whether a partner “pressured or forced you to do something sexual that you did not want to do”. The former was poorly understood by patients, who found the item too broad (“What counts as sexual? What counts as abuse?”). Patients unanimously found the latter item clearer. Some noted its superior ability to distinguish between unwanted sexual activity and, for example, sexual play that could include consensual sado-masochistic elements (e.g., bondage).

(3) Psychological violence

(a) Partner “control”: Of the eight psychological violence items tested, four concerned the concept of being controlled by a partner. These included (1) controlling “where you go, who you talk to, or how you spend your money”; (2) preventing the patient from communicating with or seeing friends/family/co-workers; (3) demanding and monitoring access to cell phone, email, social networking sites, finances or spending; and 4) being made to feel “isolated, trapped or like you were walking on eggshells in the relationship”. Patients found that the first item failed to consider whether the person had consented to the control, e.g., in the case of wanting their partner to control their finances, or when being cared for by a partner in the event of illness/disability. The second item, while unanimously understood, was felt to exclude important individuals, such as religious leaders and social workers. For the third item, the verb “monitor” was not believed to be necessarily invasive or abusive. The fourth item contained an English-specific expression (“walking on eggshells”) without a directly translatable Spanish-language equivalent, and the term “isolation” which was not universally understood.

To address patients’ concerns and improve comprehension, we crafted a composite “control” item, querying whether they felt “cut off from others, trapped, or controlled [by a partner] in a way you did not like”. The specification of “a way you did not like” was believed by patients to be key to identifying IPV; this distinction had been missing from many of the legacy items assessing partner ‘control’. We chose the term “cut off from others” as it simplified the potentially cumbersome alternative of reviewing specific types of contacts (e.g., friends, co-workers). This simplification maximized relevance to patients while maintaining fidelity to the concept of partner-controlled isolation. We chose the term “trapped” as it was well-understood in Spanish and English and distinct from the concept of being “cut off” from others, and to capture patients that might not be isolated socially but feel “trapped” unwillingly by their partners in any other sense.

(b) Being “made to feel afraid” by partner: Four items pertained to a partner provoking fear by screaming,

yelling/cursing, or threatening harm against them. Some patients felt that being “screamed, yelled, or cursed” at was not always necessarily an indication of abuse. Being made to feel afraid was viewed as more concerning and specific to what was intended by the ‘screaming/yelling/cursing’ at. This prompted us to create the composite item querying whether a partner “made you feel afraid that they might try to hurt you in some way”.

(c) Humiliation and emotional abuse: An item querying “humiliation and emotional abuse” was poorly understood by patients due to the lack of a clear agreement or understanding regarding the meaning of both concepts. For example, a partner’s actions may not necessarily have been intended to humiliate the patient; or humiliation may have arisen from jealousy of the partner. The concept of “emotional abuse” as a general term was also problematic; patients were unclear regarding its definition and scope. Moreover, we were concerned that “emotional abuse” may capture patients without truly abusive partners, such as patients who feel at times emotionally hurt by the partner’s neglect or objectively non-abusive actions (e.g., spending time with friends the patient does not like). Given the ambiguity and need to narrowly define this term, which would likely require administering more than one additional item, and lack of superior or suitable alternatives for these concepts in the item pool, we opted to omit this item.

Final screening instrument

The final screening instrument (Figure 1) clearly defines “intimate partner” and is inclusive of several past and current partner types. We did not include persons with whom one has ongoing contact but lacks the emotional and/or physical intimacy shared by a romantic, domestic, or sexual partner. Patients described the importance of a longer recall period, noting that IPV may be sporadic; we thus selected a one-year period. In the interest of brevity and patient tolerability of the instrument, we selected one item each to represent physical and sexual violence, and two to represent separate aspects of psychological violence (being controlled/trapped and being made to feel afraid).

All concepts were present in both languages, and neither language lacked a concept found in the other. Differences were primarily semantic; items translated into Spanish maintained fidelity to their English-language concepts, even after minor alterations to wording.

Identification of IPV across all 6 CNICS sites

Of n=6415 patients administered the IPV-4 between 6/16/16 and 11/6/19, 594 (9%) indicated any IPV. Of these, 295 (5%) indicated physical IPV, sexual IPV, or

English:

The next questions are about you and a partner. By "partner" we mean current or former.... husband/wife, boyfriend/girlfriend, domestic partner, romantic partner, or sex partner.

In the past year, did a current or former partner....

Make you feel cut off from others, trapped, or controlled in a way you did not like?

Yes/No

Make you feel afraid that they might try to hurt you in some way?

Yes/No

Pressure or force you to do something sexual that you didn't want to do?

Yes/No

Hit, kick, punch, slap, shove, or otherwise physically hurt you?

Yes/No

Spanish:

Las siguientes preguntas son acerca de usted y su pareja. Con "pareja" nos referimos a su actual o anterior: esposo(a), novio(a), pareja de hecho, pareja romántica o pareja sexual.

En el último año, su pareja actual o anterior:

¿lo hizo sentirse apartado de los demás, atrapado o controlado de una manera que a usted no le gustó?

Sí/No

¿lo hizo temer que pudiera intentar herirlo de alguna manera?

Sí/No

¿lo presionó o forzó a realizar algún acto sexual que usted no deseaba?

Sí/No

¿lo golpeó, pateó, le dio un puñetazo, abofetió o lastimó físicamente de alguna otra forma?

Sí/No

Figure 1. IPV-4.
Source: Authors (2022).

both in the past year (216 or 3% indicated physical IPV, 180 or 3% indicated sexual IPV, and 101 or 2% indicated

both). Two hundred ninety-one reported fearing harm from a partner (5%), and 479 reported feeling “trapped,

cut off, or controlled in a way I did not like” (7%). The IPV-4 took on average 26 s to complete (maximum time 74 s).

Chart review analysis

Of n=1756 patients that were administered the IPV instrument as part of the clinical assessment of PROs in clinical care at UW between 6/16/16 and 11/6/19, we identified 158 PWH (9%) who indicated physical and/or sexual IPV via the IPV-4. Of these, 63 (40%) had been in care for their HIV at UW for ≥ 5 years. We reviewed medical records for these 63 individuals, with an average of 34 visits per patient. Of these, only 12 (19%) had indications in medical records of any form of IPV up to five years prior to the date of indicating IPV on the IPV-4. This suggests that among PWH well known to their primary care delivery team, the IPV-4 may identify additional patients experiencing IPV than had previously been documented by their primary care providers or anyone else in the UW medical system.

DISCUSSION

We developed a 4-item screening instrument of physical, sexual, and psychological IPV in English and Spanish that addresses the need for a brief, gender-and sexual orientation-neutral assessment of IPV. The instrument was well- understood and well-tolerated by PWH. The IPV-4 includes specific focus on psychological violence, which among PWH and others is increasingly recognized as a factor associated with immune function and healthy behaviors (Fitzsimmons et al., 2019b; Jewkes et al., 2015; Kalokhe et al., 2016). We identified a 9% indication of IPV among PWH across CNICS sites, and, per chart review analysis, identified substantially more IPV than had been previously identified by providers.

Our literature review confirmed a lack of consensus on a single well-validated patient-reported IPV screening instrument. We found that many IPV screening instruments were developed for population research purposes, were too lengthy to be feasible for use in routine clinical care, or used population-specific language (e.g., pregnant persons). Psychological violence measures proved particularly problematic for some patients, at times perceived as not necessarily reflective of abuse (e.g., in the case of a partner “controlling one’s money”).

PROs intended for routine clinical care work best when they are brief, clinically relevant, and easy to understand (Fredericksen et al., 2016; Stover et al., 2015). In developing the IPV-4, we found opportunities to improve brevity by consolidating language to simplify items while maintaining fidelity to concepts. We found it pertinent to consolidate a single physical abuse item that lists a variety of impact types (e.g., shove, kick, punch) rather than

assessing each type of impact separately, since all forms are clinically concerning. For psychological violence, which manifests in innumerable forms, we generalized concepts of unwanted “control” and “being made to feel afraid”, rather than querying *what* was controlled, or in what *way* the patient was made to feel afraid. This level of detail could be more appropriate for follow up in the context of patient-provider discussion.

Computer-based IPV screening has been found to detect more IPV than face-to-face interviews (Miller et al., 2022) and to be preferred by patients (El Morr and Loyal, 2020). We recommend same-day pre-visit computerized IPV PRO screening on-site prior to the appointment, so that clinicians may respond in real time as needed (e.g., using alerts generated by the screening), as is currently practiced in CNICS sites (Fredericksen et al., 2021b). The IPV-4 is a brief, well-vetted multidimensional instrument suitable for screening IPV in busy clinical care settings. It identified PWH that had experienced IPV and detected incidence that might have otherwise been missed.

Strengths

We interviewed a diverse patient sample across race, sex/gender, sexual orientation, and geographic area, oversampling ethnic minorities and cisgender women.

Limitations

In order to avoid re-traumatization of PWH that had experienced IPV, we did not conduct concept elicitation interviews.

Conclusion

Item pool development, the QIR process, and bilingual patient cognitive interviews informed development of the IPV-4, a brief, clinically relevant, comprehensive, well-tolerated screening instrument for IPV that is gender/sexual orientation-neutral. The IPV-4 was easily integrated into HIV care and identified a high prevalence of unsuspected IPV among PWH, including those well-established in care.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

ACKNOWLEDGMENTS

We thank participating patients for their candor and

insights, and site staff for their contribution to this work. This research was funded by the Patient Centered Outcomes Research Institute (PCORI) #SC14-1403-14081. Additional support: National Institutes of Alcohol Abuse and Alcoholism (NIAAA) at the National Institutes of Health [U24AA020801, U01AA020793 and U01AA020802] and the National Institute of Allergy and Infectious Diseases (NIAID) at the National Institutes of Health [CNICS R24 AI067039, UW CFAR NIAID Grant P30 AI027757; and UAB CFAR grant P30 AI027767]

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