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ORIGINAL ARTICLE

Conducting Digital Intervention Research among Immigrant Survivors of Intimate Partner Violence: Methodological, Safety and Ethnical Considerations

Bushra Sabri[1] · Jyoti Saha[2] · Jennifer Lee[1] · Sarah Murray[2]

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Abstract

Intimate partner violence, described as a global pandemic by the United Nations, has been found to disproportionately affect immigrant women. Many immigrant survivors of IPV are unable or unwilling to attend in-person services due to barriers related to immigration status, transportation, and social isolation. By providing remote support to women in abusive relationships, digital interventions can help address these barriers and ensure their health and safety. Research on safe and ethical approaches to digital service delivery for immigrant IPV survivors is a necessary first step to meeting these women's needs for remote support. The purpose of this qualitative study was to explore considerations and challenges of conducting digital intervention research (online, phone and text) with diverse groups of immigrant women. Data was collected via 5 focus groups and 46 in-depth interviews with immigrant survivors of IPV from different countries of origin. In addition, data was collected via key informant interviews with 17 service providers. Participants shared safety, ethical and methodological challenges to accessing interventions, such as their abusive partner being at home or lack of safe access to technology. Further, participants shared strategies for safe data collection, such as scheduling a contact time when participants are afforded privacy and deleting evidence of the intervention to retain personal safety. The findings will be informative for researchers conducting digital intervention studies or practitioners engaging in remote intervention approaches with marginalized populations such as immigrant women at high risk of violence.

Keywords Intimate partner violence · Digital intervention · Immigrant women · Safety

Among survivors of intimate partner violence (IPV), immigrant women are a high-risk population that warrant specific public health focus. First generation (foreign born) immigrant women living in the United States (U.S.) have been found to be disproportionately affected by IPV and related homicides (Sabri et al. 2021a; Sabri et al., 2020). Issues specific to acculturation and migration status (e.g., undocumented immigration status and threats of deportation as a means of control by the abusive partner; Sabri et al., 2020) are particularly prominent for foreign-born immigrant survivors and shape access to IPV support services. In addition, immigrant women have described a lack of familiarity with U.S. systems and police distrust as discouraging them from seeking support for IPV (Sabri et al., 2018a, b). These barriers to accessing services may be experienced in addition to those noted among the general population of IPV survivors, including geographic access or discomfort with discussing sensitive topics during in-person interactions (Constantino et al., 2015).

The substantial increase in technology-based, digital interventions in recent years offers a potential avenue for improving delivery of mental health and safety services to immigrant IPV survivors. Digital interventions are implemented through mobile devices, computer/web-based platforms, or online social media modalities (Emezue & Bloom, 2021; Freed et al., 2017) and broadly include Mobile health (mHealth) and electronic health (eHealth) strategies (Dugas et al., 2020). Research on digital interventions for IPV reveal evidence of acceptability and effectiveness, with several

✉ Bushra Sabri
bsabri1@jhu.edu

[1] Johns Hopkins University School of Nursing, 525 North Wolfe Street, Room N530L, Baltimore, MD 21205, USA

[2] Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA

studies demonstrating that IPV survivors may prefer internet-based interventions because they provide a means to communicate their experiences unreservedly (Anderson et al., 2021; Constantino et al., 2015; Finn & Atkinson, 2009). Other studies have similarly indicated a degree of acceptance and preference for digital IPV interventions for the privacy and stigma-free environments they afford compared to in-person interaction (Debnam & Kumodzi, 2019; Emezue, 2020; Glass et al., 2017; Koziol-McLain et al., 2018). Accordingly, digital environments increase self-efficacy in sharing sensitive information by diminishing the social risks typically associated with IPV survivors discussing mental health (Constantino et al., 2015; Garcia-Moreno et al., 2006; Rothman et al., 2009). A comparison of an online versus face-to-face mental health intervention for IPV survivors found that the digitally delivered intervention was just as effective as its in-person complement and conferred supplementary benefits for anger, anxiety, and depression (Constantino et al., 2015). Increased technology access among certain immigrant groups is allowing increased use of digital interventions with these populations (Ali et al., 2021; Brown et al., 2016; Cherewka, 2020). For instance, Black immigrant households are reported to have similar digital technology access to the general U.S. population (Cherewka, 2020), and Hispanic immigrants' internet usage grew from 51 to 78% between 2009 to 2015 (Brown et al., 2016).

While there is promise for digital interventions to increase access to tailored safety services for immigrant IPV survivors in the U.S., no digital safety interventions are yet evidenced for use with this population. Despite rigorous standardization, adaptation, and validation of tailored digital interventions, both IPV survivors and service organizations reveal that safety remains a critical concern (Freed et al., 2017) and distinctive considerations for safe provision with this population have been described (Im et al., 2018; Pisani et al., 2016). The use of technology to gather personal and private information engenders new risks that may exacerbate safety, disclosure, privacy, and confidentiality risks in healthcare and research, especially when addressing a sensitive topic of focus like IPV (Emezue, 2020; Pisani et al., 2016; Sieber, 2006). For instance, IPV survivors' fears related to safety and security are amplified by concerns about both ensuring privacy from abusers and preventing excessive partner surveillance when participating in digital interventions. Immigrant IPV survivors may also have unique concerns regarding digital literacy and trust in the virtual intervention process that affect acceptability (Adjekum et al., 2018; Brall et al., 2019; McAuley, 2014), have limited English proficiency (Ono & Zavodny, 2008), have decreased awareness of available resources (Raj & Silverman, 2002), or have concerns about deportation or family loyalty stemming from the legal and cultural environment, respectively (Ting & Panchanadeswaran, 2009). Therefore, employing specific strategies to protect the safety and well-being of immigrant women are critical in digital IPV interventions to ensure effectiveness and eventual implementation.

Prior research has also not explored perspectives of immigrant IPV survivors and their service providers on challenges to conducting digital intervention research, approaches to engagement, and strategies to ensure survivors' safety throughout the research process. Existing research has explored challenges with supporting survivors remotely or conducting research with survivors during the COVID-19 pandemic, which has intensified the need to formulate effective strategies to engage survivors (Emezue, 2020; Peterman et al., 2020). In response, this study explored methodological challenges and safety considerations in conducting digital intervention research with diverse groups of immigrant IPV survivors for the purpose of informing safer and more effective prospective digital interventions. This study was unique in its objective to receive feedback on three different intervention digital modalities: a website/app, phone, and text. Findings from this study can inform the utility of and procedures for conducting digital intervention research and providing remote intervention support to immigrant survivors of IPV.

Methods

This qualitative study is part of the formative phase of a sequential multiple assignment, randomized trial (SMART) designed to evaluate an adaptive, trauma-informed, culturally tailored digital intervention to reduce risk of future IPV or homicide, improve mental health, and increase empowerment of immigrant women experiencing IPV (Sabri et al., 2021b). In-depth interviews and focus groups were conducted to develop and refine online/web-based, text and phone intervention components of the intervention. Focus groups and in-depth interviews were both used with immigrant survivors as these methods provide valuable but distinct information and together allow triangulation that can enhance rigor and insight. In particular, focus groups were selected to create an environment in which points of agreement and dissension could be identified and discussed, allowing for modification of views and identification of social norms (Baillie, 2019; Cleary et al., 2014; Lederman, 1990). In-depth interviews were selected to afford participants greater privacy and confidentiality

that might allow them to share more personal insights on IPV and to enable interviewers to elicit subjective views and probe for deeper understandings of participant experiences and reactions to potential intervention content (Dempsey et al., 2016; Johnson & Rowlands, 2012; Roller & Lavrakas, 2015).

Participants

Seventeen key-informant interviews were conducted with service providers, specifically individuals recruited from partnering domestic violence (DV) organizations across the US that had two or more years of experience working with immigrant IPV survivors. In addition, 46 in-depth interviews and 5 focus groups ($n = 17$ participants; 4–8 participants per group) were conducted with IPV survivors who had migrated from Africa, Asia, the Caribbean, or Latin America (Table 1). IPV survivors were recruited using snowball and purposive sampling methods from multiple states within the US: Massachusetts, New Jersey, Texas, Illinois, Maryland, Virginia, and Washington DC. Recruitment strategies included posting flyers at DV/IPV organizations, and direct verbal invitations to participate in the study aided by staff at the DV/IPV partner organizations. While it was not a specific requirement that women were service seeking, we expect that much of our sample was connected to organizations that address DV due to their affiliation with the DV organizations at which they were recruited. Potential participants were screened for eligibility by staff at the DV/IPV partner organizations with the criteria that a participant be: 1) a foreign-born immigrant woman currently residing in the U.S., 2) over 18 years of age, and 3) who experienced IPV within the past year. Willing participants were able to either directly contact the research team to express their interest in participation or provide permission for the research team to contact them to arrange a time to learn more about the study, complete informed consent procedures, and participate in an interview.

Data Collection Procedures

Upon obtaining oral informed consent, in-depth interviews were conducted by a research assistant in English via phone or Zoom video call, based on participant preference. Focus groups were conducted in-person. We had a safety protocol for contacting participants for interviews through phone or zoom, in which participants were asked to provide a number that they felt was safe for interviewers to use to contact participants at their preferred days and times. Before interviews, participants were always asked if it was a safe time to talk.

Table 1 Participant demographics

	n (number of participants)	%
IPV survivors: in-depth interviews		
Age		
20–29	9	19.6%
30–39	20	43.5%
40–49	15	32.6%
50–59	2	4.3%
Length of time residing in US[a]		
1–9 years	22	48.9%
10–19 years	15	33.3%
20–29 years	7	15.6%
30–39 years	0	0%
40–49 years	0	0%
50–59 years	1	2.2%
Education		
High school or less	5	10.8%
Some college	9	19.6%
Undergraduate degree	9	19.6%
Post graduate degree	23	50.0%
Region of origin		
Africa	12	26.1%
Asia	22	47.8%
Caribbean	5	10.9
Latin America	7	15.2%
IPV service providers: key informant interviews		
Age		
20–29	2	11.8%
30–39	5	29.4%
40–49	5	29.4%
50–59	5	29.4%
Region of focus		
Africa	3	17.6%
Asia	7	41.2%
Latin America	4	23.6%
Some combination of these	3	17.6%
IPV survivors: focus groups		
Region of origin		
Africa	4	
Asia	5	
South Asian	4	
Caribbean	2	
Latin America	2	

[a]Length of time residing in US of one survivor was not provided

Interviewers were also trained on how to respond if a participant was in immediate danger during telephone contact.

Both focus groups members and in-depth interview participants were first asked to review drafts of online text- and phone-intervention content so that they could

provide insights on their experiences using these various mediums. This was done prior to engaging participants in an interview or focus group. Participants were not required to have completed any digital intervention prior to engaging in the research. However, they were asked to review digital intervention content using a smartphone for both web/online and text messaging intervention components. For the phone component, focus groups participants were asked to review a printed copy of the phone intervention plan, and in-depth interview participants were sent an electronic copy of the phone intervention for input. We provided these drafts to help ground the conversation and enable iterative refinements to the intervention materials based on potential user feedback. Specifically, we asked participants to review the intervention content and share their feedback about each component (online, text and phone), what they found most helpful, what they found least helpful, and how the content could be modified for improvement. They were also asked about their general opinions on how to better engage women in digital intervention research studies. The in-depth interview guide for survivors and key informants focused on the effects of digital interventions, including questions on access or availability of necessary technologies, level of ease and understanding of technology use, and the mental health implications of engaging with these interventions (See Table 2). Other questions concerned methodological considerations, logistics regarding safety during use, protecting participant confidentiality and providing useful resources. Interviews with service providers focused on access and usability of technology for immigrant women and how to consider cultural nuance, communication barriers, ethics, and unique safety concerns in digitized interactions.

Every interview was digitally recorded and transcribed verbatim with the aid of an external transcription service. Data collection concluded as we approached saturation of information, i.e., novel findings on key themes related to our study aims no longer emerged (Sandelowski, 1995). The maximum possible sample size was determined a priori based on previous work by qualitative scholars in a multisite, cross-cultural study. No more than 16 participants were found to be adequate in a homogenous sample and 20 to 40 participants were needed in a heterogeneous sample (Hagaman & Wutich, 2017). Compensation for study participation was provided at a rate of $40 for service providers and $35 for survivors. All study procedures were approved by the Johns Hopkins Medicine Institutional Review Board.

Data Analysis

Qualitative data analysis followed a systematic inductive, grounded theory informed thematic approach to transmute raw transcripts into coded, topical concepts, allowing for the identification of emergent themes (Bowen, 2006; Chandra & Shang, 2019; Thornberg, 2012). Thorough review of participant interview transcripts was the initial step, conducted by a team of three individuals—a qualitative researcher with a master's degree in social factors of health, a practicing nurse with a master's degrees in public health, and a nursing PhD student. These three team members engaged in independent

Table 2 Interview guide

Question topic	Example questions
Access/Availability of technology	What kinds of apps do you use for receiving text messages or for phone calls?
Level of ease and understanding of technology use	What can we do to make the website more understandable? What can we do to make the website more comfortable or not upsetting?
Mental health implications associated with technology interventions	Please tell me about anything on the website that made you upset or uncomfortable. What about those parts made you feel uncomfortable or upset?
Logistics regarding safety during use	What concerns would you have about your partner finding out about the study? What strategies would you use to prevent your partner from knowing that you were using the study website/app?
Useful resources	What kind of resources can we provide to our participants to give them the most comfort and ease in terms of talking about our study to other people and feel safe about it?
Question topic	Example questions
Considerations for incorporating cultural nuances	Do you have any recommendations of how we could change the wording of our responses to translate better [in your language]?
Language/ Communication barriers	Do you have additional suggestions for our communication with immigrant survivors to improve their health and safety, other than addressing the language barrier?
Ethics and safety of digitized interactions	What would you suggest for safety procedures when interacting with survivors? In your opinion, what are some good code words to use for safe texting or calling?

coding of the transcripts. Individual code prevalence was used to inform primary themes. To ensure credibility and reliability, team members met to compare coding and identified themes and resolve coding discrepancies. As part of these meetings, the researchers engaged in peer debriefing sessions to engage in reflexivity on how their own perspectives and experiences might shape their analysis of participants' responses. The team members also met with the study Principal Investigator to review the analysis and discuss interpretation of the data. This data analysis process began while data collection was still occurring. However, data collection and analysis processes were conducted by different researchers, limiting the ability of preliminary findings to shape ongoing data collection. Data analysis was conducted using Dedoose software (Dedoose Version 8.3.21 2019).

Results

Technological Barriers to Survivor Participation in Digital Intervention Research

Dependence on Abuser for Survival and/or For Access to Technology (*n* = 24)

Women commonly described reliance on a partner or someone else for access to technology. As shown in Table 3 (quotes 1, 2), most women did not have direct access to electronic or video communications without permission or surveillance from their abusive partners. Women also reported financial dependency on their partners for phone and internet services as well as for basic needs, such as food and shelter. These financial and technological barriers made it difficult for women to consider participating in digital intervention.

Device Monitoring by The Abuser and Fear of Experiencing IPV (n = 24)

The challenge that simultaneous dependence on a partner for technological access and reliance on partner for basic needs for survival posed for participation in digital interventions was exacerbated by frequent surveillance from partners, making it likely they could find out about a woman's participation, as evidenced in Table 3 (quotes 3, 4, 5). Over one-fourth of participants discussed excessive surveillance and monitoring of devices by abusive partners as a risk for women engaged in a digital research study, which could include monitoring phone or computer activity, reading text messages, going through call history, and monitoring internet access and app usage. Participants reported that engaging in digital interventions is also made difficult by an inability to delete intervention materials off a device in a timely fashion, or the ability of an abusive partners to monitor activity on a device in real time. These threats limit the scope of remote, digital interventions and potentially restrict women from being actively engaged in these interventions. Without adequate safety and protective measures, engaging in digital interventions can potentially escalate violence and tension, rather that safeguard against it.

Language/Communication Barriers and Cultural Appropriateness of Digital Content (*n* = 14)

Some service providers and immigrant women participants highlighted concerns regarding language as a barrier to women's use of digital interventions or engagement in digital intervention research. As shown in Table 3 (quotes 6, 7), survivors and providers indicated that low literacy levels and low English proficiency affected survivors' comprehension of digital content and messages or phone calls from researchers. Translation tools built into the intervention may mitigate this issue, but not all English words or concepts wholly translate to other languages. Consequently, careful interpretation with an external translation team may be fundamental to addressing this concern. A few participants mentioned additional concerns such as lack of familiarity with "self-rating scales"— questionnaires often used to assess attitudes, interests, abilities, etc.—among some immigrant groups.

In addition to these issues of limited literacy and language proficiency, service provider highlighted the importance of ensuring that digital interventions are culturally informed, as shown in Table 3 (quote 8). An inability to understand or interpret components of the intervention engenders a potential dissuasion from participation. Adapting semantics and concepts to particular cultures, languages, and lifestyles, remains a critical amendment to digital interventions. Participant responses suggest that simplifying language may aid user experience. In this case, there are opportunities to utilize standardized literacy scales prior to intervention implementation, to best determine the reading and comprehension levels of participants.

Methodological, Safety and Ethical Considerations for Engaging Immigrant Survivors in Digital Intervention Research

A majority of participants mentioned safety and ethical concerns related to participating in research involving specific technology mediums (phone, text, website), as well as the safety strategies research teams should use to address those

Table 3 Participant quotes

Theme	Participant response (%)[a]	Quote number[b]	Quote
Dependence on abuser for survival and/or for access to technology	35	1	*When I came here, I didn't even have a phone. I just connect with people and tell them, "I'm going through something like this. I may seek out help from you. Can I use your phone?" That was the only way because I've gone through that map, no phone, multiple phones, his phones, devices rigged. Phone can be rigged, but still, I can use, if I know how to use it and not use the carrier that he's paying me for.* (*Focus group, South Asian)*
		2	*I'm dependent on my husband. I have work authorization, but I'm not educated. I don't have access to phones, so I cannot get help. (Focus Group, Asian)*
Device monitoring by the abuser and fear of experiencing IPV	35	3	*I see a lot of clients where their abuser just randomly shut off their phone or not pay their phone bill or take their phone from them when they're at home and kind of monitor who's reaching out. I just think that's the tough part, that kind of control*
		4	*For me, every time that he was able to view my phone and he would read something he wasn't happy with; the violence just went up. My risk level just completely increased. That is my worry. If there was a day that he would view my applications and he knew where I was or that I went to an appointment to see an advocate… there could be violence in my house. (Focus Group, Latina)*
		5	*Where the partner suspects—even if they're not controlling the phone, they see the texting going on, and they think that the partner is cheating on them, the victim is, and it increases the abuse. Rather than them getting a safety plan, it actually increases the abuse from the abuser. (Focus group, South Asian)*
Language/communication barriers and cultural appropriateness of digital content	21	6	*I think it's a lot of information to read. And I'm just thinking, if someone doesn't know English, it can feel overwhelming (Service Provider, Age 32, 10+years in the US, Latina, Venezuelan, Works with Latina survivors)*
		7	*How can you reach me with technology…if I'm uneducated…I don't know English. I don't know how to express myself (Focus Group, Asian)*
		8	*Words like "assess" are very clinical. These are very system words…you get assessments in school. Your language is assessed. Immigration assesses you. So, it is important to remove some of that language…saying…here are some things for you to consider or things like that I think are less victim blaming and removes some of those systems words, systems that aren't always kind to immigrants. (Service Provider, Age 40, 17 years in the US, African, Kenyan, works with African immigrant survivors)*
Ensuring privacy and confidentiality	35	9	*Most women are very scared to talk about things because they think that it's not going to be anonymous, and people will use their identities, even if it's some kind of number which does not include their name also. If somebody finds out, then they will be in deep trouble (Survivor, Age 46, 29 years in the US, Pakistani, Asian)*

Table 3 (continued)

Theme	Participant response (%)[a]	Quote number[b]	Quote
Using trauma-informed approaches to address psychological barriers to engagement	28	10	*Some people could be more willing to participate than others. The only problem is that…victims have, more trauma" (Service Provider, Age 52, Sudanese, African, works with African immigrant survivors)*
		11	*If there could be a page before the next page comes in…. saying, "there could be sensitive questions which might trigger your memories, but this is helpful for the information and help other women (Survivor, Age 37, 12 years in the US, Indian, Asian)*
		12	*We understand that it can be scary to call the police," and…. "If you're in a domestic violence situation or an emergency, you have the right to call the police without being at risk of being deported (Service Provider, Age 24, works with African, Asian, Caribbean, survivors)*
		13	*…instead of telling me, "Calm down." Saying that, "You are not alone, and we are here with you at every step of the way (Survivor, Age 37, 12 years in the US, Indian, Asian)*
Deleting evidence of involvement in digital intervention	35	14	*I found it helpful that it [the text intervention] had a tone in err of safety, overall, because I noticed that it ended each time with, "Don't forget to delete these text messages if you need that to feel safe," or, "Don't forget to call the police." So that was a nice reminder of safety. (Service Provider, 24, works with African, Asian, Caribbean, survivors)*
Implementing strategies to ensure personal safety of survivors	53	15	*Talking to them on the phone, rather than an app…discussing… "Do you have any friends or family here? If you do, who do you trust out of those? Who can you, live with for a day or two in case of emergency if you fear your life? Have an extra bag ready. How to save some money away from your spouse in case of emergency" Help them plan with that on a personal level. (Survivor, Age 32, 5 years in the US, Pakistani, Asian)*
		16	*You should also give her some tips to avoid opening in where her partner can see. If she opens in laptop, he might be able to see. She should maintain the privacy (Survivor, Age 28, 5 years in the US, Indian, Asian)*
Ensuring Safe and Effective Remote Data Collection	69	17	*You really do need to hear certain things more than once for them to stick, especially for people who have been traumatized. It's really important to say some of the same things in different ways, through text, through reading, and verbally. Some clients will understand better through reading. Other clients may understand better through the phone…I think it's good that they're getting information in different ways. (Service Provider, Age 38, 38 years in US, American, works with African, Asian, Caribbean, Latina survivors)*
Asking Survivors about a Safe Time to Talk or Text	32	18	*I would say allow the woman to reach out to you because she knows when she's out of the house. She knows when her atmosphere is an atmosphere where she can do so, or the abuser's not in the house. Sometimes we don't want to discuss this in front of our children If you call me and my kids are there, I'm not talking to you. (Focus Group, Latina)*

Table 3 (continued)

Theme	Participant response (%)[a]	Quote number[b]	Quote
Using Code Words	54	19	*Maybe creating some type of code language that the woman could understand and be able to get and respond, and you get the information that you need as well as her being able to express what she needs to let you know…because if the abuser gets his hands on the phone, it would let him know right away that she's seeking help or she's communicating about her situation to someone, and that can put her at a higher risk. (Focus Group, Latina)*
Providing Information about Resources and Checking in	60	20	*We can use information from the text messages, because sometimes [in text] they may share their story saying, " Yesterday he got a little angry, and we had a big fight. And he wanted me to do, this, but I didn't want to do it… he did not appreciate it." I think bringing that back into the phone conversation saying, "I understand you were [experiencing such-and such] the other day…How are things going?" (Service Provider, Age 54, works with Asian survivors, Indian, Asian)*
Preferable Safe Medium to Access the Digital Intervention	63	21	*When I took the surveys and the questionnaires using the laptop, the screens are bigger. So it was useful that way. And I found I needed to make sure that I went through the pages and – didn't miss anything on the form. So that's why I chose laptop. (Survivor, Age 47, 20 + years in the US, Indian, Asian)*
Preferable Apps for Intervention Phone Calls or Text Messages	60	22	*WhatsApp is the only communication—internet-based tool where you can talk, text, video, and check on everything, so it's an all-in-one" (Survivor, Age 35, 3.5 years in the US, Indian, Asian)*
		23	*I think most of the immigrant women we work with are open to it because they all use WhatsApp application. And that is [to] connect back home with their families and friends. So I think that they are already much in tuned with the messages and getting some input through that. It's more secure, and it's easier. (Service Provider, Age 54, Indian, Asian, Works with Asian survivors)*
		24	*I do more WhatsApp… if the husband is paying the phone bill, he can check who is sending the text to her… And that makes her more unsafe. And, secondly, WhatsApp calling is mostly through the internet. It does not cost her. And it does not go on her record. So that helps. So, anything which she can keep—even when he cuts the phone line…her phone is working. (Service provider, Age 55, 18 years in the US, Indian, Asian, Works with Asian survivors)*
		25	*Something that a victim can access by downloading, but something that has safety, like a protection that it's not hackable. Something that can be created that the woman can download even if her phone is hacked, the abuser does not view or is not able to view. That would be ideal. (Focus Group, Latina)*

[a]Participant response refers to the percentage of participants that were asked about and shared an experience or information pertaining to a particular theme

[b]Quotes have been numbered for ease of reference in the body of the text

concerns. Methodological and ethical considerations for digital research studies with immigrant survivors of IPV included ensuring confidentiality and safety of research procedures through implementing digital safety and security measures. Procedures to establish trust and address fears in both the digital intervention platform and study-related

exchanges with the participant are of importance, as well. Best practices for interacting with immigrant survivors, including motivation and education for using digital platforms and devices, were other important points (Fig. 1).

Ensuring Privacy and Confidentiality ($n = 24$)

Both survivors and service providers emphasized a need to protect the confidentiality and privacy of survivors to ensure

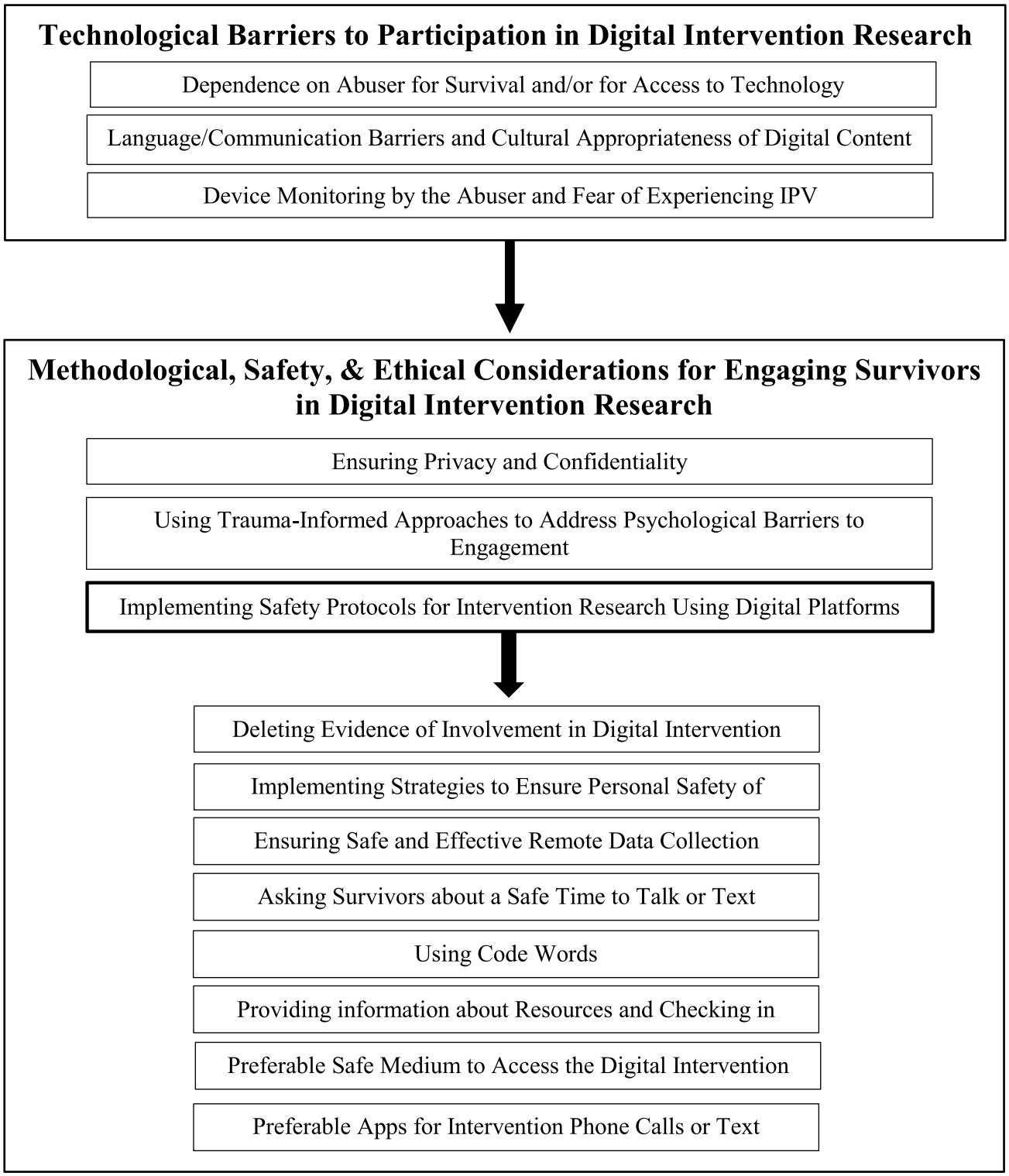

Fig. 1 Summary of findings

abusive partners would not be able to find out about their participation in digital interventions (Table 3, quote 9). To mitigate fears of exposure of participation, women's information was safeguarded by establishing digital safety, online anonymity, and network security,

Using Trauma-Informed Approaches to Address Psychological Engagement Barriers (*n* = 17)

Over a fifth of participants mentioned that survivors' mental health symptoms such as depression and PTSD may affect their ability to engage in digital intervention research. Table 3 (quotes 10, 11) suggests that reexperiencing trauma was a central reason women may not enroll in research studies. There was also an expressed need for 'content warnings' to be incorporated into interventions. Delivered as a message in app or text interventions, or as a spoken forewarning from the research assistant prior to a phone session, these content warnings would forewarn participants to the sensitive nature of the conversation and provide them with a choice of whether they want to revisit traumatic memories during the session. Women also felt it was necessary to add a statement assuring women that calling or having the police called when they are in immediate danger would not result in further harm or deportation. This concern acts as a deterrent from seeking help for many IPV survivors but is especially burdensome on immigrants who are not considered citizens of their host country. A service provider shared an example of a disclosure that could be communicated to survivors in this situation (Table 3, quote 12).

As shown in Table 3 (quote 13) some survivors ($n = 10$) mentioned inspirational quotes should be included throughout the text intervention as a means of keeping participants spirits up and encouraging women to take control of their situation. Participants suggested examples including messages thanking survivors for sharing their stories, reminding them that the research team is there to help them be safe, reaffirming that their lives are valuable, emphasizing that they are not alone, and clarifying that they are not to blame for the situation.

Implementing Safety Protocols for Intervention Research Using Digital Platforms

Survivors and service providers were asked about safety risks associated with digital interventions and presented strategies to mitigate those risks. These strategies included how immigrant survivors could keep themselves safe when engaging in a digital intervention, how research teams could better keep immigrant survivor participants safe, and how the intervention itself could be improved to enhance participant safety.

Deleting Evidence of Involvement in Digital Intervention (*n* = 24) Women's safety can be compromised if the abusive partner can discover her internet browsing history, hear phone communications or read text message interactions with the study team. Developing a list of strategies to ensure participants' safety when using digital mediums for intervention research is thus necessary. About one-third of participants highlighted a need to delete evidence of their participation from their devices and history to keep their partner from learning of their involvement (see Table 3, quote 14). Many women reported a common practice of repeatedly clearing their browsing histories, deleting all messages, and signing out of any device used. Such protective messages can be emphasized within the intervention as reminders for all women.

Implementing Strategies to Ensure Personal Safety of Survivors (*n* = 36) In addition to building safety reminders into the online/app intervention, participants shared that it would be helpful to have a safety planning demonstration of the app or website that would teach women how to use the app and which features could be used in the case of an emergency. However, one stipulation was that conducting this information session through the app itself was not ideal because app navigation may not be well-understood by all. As presented in Table 3 (quotes 15, 16) using personal phone-based explanations and offering safety preparations for phone calls to explicitly inform survivors that they can end the phone conversation at any time if they feel unsafe or are around their abuser may be more helpful. Phone calls were preferred to text messages since there was no traceable record of what was being discussed in the intervention.

Ensuring Safe and Effective Remote Data Collection (*n* = 47) The most common suggestions made regarding how to safely and effectively conduct remote data collection using technology were promoting safety strategies to protect participants within digital interventions, building rapport and trust with participants, and using preferred platforms or modalities preferred by immigrant women for accessing the intervention. Another common suggestion was the need to personalize the intervention to participants' needs as it can promote ease of use and positive participant experience. Table 3 (quote 17) highlights the need for a multi-modal intervention, with regards to phone-, web-, and text-based means of delivering intervention information.

Asking Survivors about a Safe Time to Talk or Text (*n* = 22) One of the most frequently mentioned safety strategies for research studies was asking survivors if it was a safe time to text or talk on the phone, as indicated in Table 3 (quote 18). Survivors and service providers provided input on approaches to ask women if women were safe to engage in the study. The approaches included asking if texting was more comfortable, women pretending to help their children with homework if they needed to use the computer for research study, giving the research study team a time when abuser was not at home, and if needed, allowing survivors to initiate the intervention phone calls with the research team.

Using Code Words (*n* = 37) Participants also mentioned the need to incorporate safety measures into the intervention itself, and provided suggestions based on their experiences. One of the most popular suggestions from participants ($n = 34$) was the use of code words as part of the text message intervention, in place of sensitive and risky words that might otherwise tip off an abusive partner about the nature of the study as evidenced by Table 3 (quote 19). It was also highlighted that it is important to use codewords that are chosen by women and would not place them at risk. For example, participants were presented with a code phrase of "your daily medication reminder" when initiating a text conversation and asked to respond. This code phrase was used as a tactic to hide participation from abusive partners. Specifically, when trying to communicate with a participant, the message of "your daily medication reminder" would appear on a participant's phone in a text message alert. Although some survivors preferred this code, others claimed that it raised suspicions from their partners, especially for those who did not use any medications. As a result, a number of service providers suggested using culturally specific code words suggested by the survivor that tailor to individual survivor situations.

Others ($n = 8$) mentioned using a covert phone number when calling participants so that abusive partners would not have access to this number if they were monitoring call logs. Making the number restricted would be a potential avenue to address this. The need for pin codes to access the study's app were frequently referenced by participants as well ($n = 13$), providing an additional layer of safety when receiving intervention information. Upon receiving a call or text, one participant also mentioned the need to ask women to rate their safety level at the beginning of the phone call, so that the research team could be aware of any urgent or dire situation.

Providing Information about Resources and Checking In (*n* = 41) Over half of participants ($n = 41$) discussed a need for providing local, effective safety resources in the phone, web/app, and text intervention components, with some ($n = 8$) even mentioning having a trigger alert option in case a participant was in danger. Multiple participants ($n = 16$) offered suggestions for the phone intervention, such as providing contact information of local immigration attorneys, resources for child, and information on self-care. For the text intervention ($n = 37$), the incorporation of "clickable" links (also known as hyperlinks) to local resources that can be found within the text messages could be sent during the text intervention. Less than one-quarter of participants ($n = 15$) shared suggestions for the website/app portion of the intervention, but those who did described a need to have up-to-date, functional links embedded within the app, especially to community resources based on one's location. In this case, study team members need to consistently update links to reflect active resources. Table 3 (quote 20) emphasized the need to integrate information from the text intervention into the phone intervention, and vice versa, as a means of checking in on the participant and ensuring that they are safe.

Over a quarter of participants ($n = 22$) identified a need to include mental health resources, such as mental health screening questions and a plan of action for women who mention they are considering self-harm while involved with the intervention. Less commonly, participants ($n = 5$) indicated a need to deliver a comprehensive explanation of state-specific mandated reporter laws to immigrant survivors as part of the phone intervention, as they may not be familiar with them.

Preferable Safe Medium to Access the Digital Intervention (*n* = 43) Practical and safety considerations varied based on the medium (desktop computer, laptop, or phone) used to access the intervention. Fewer women preferred to use their computer or laptop to view intervention content. As shown in Table 3 (quote 21), these participants attributed this preference to ease of use. Most women instead preferred using their smartphone as they felt they were more convenient, easier to use without WiFi, conferred a greater sense of security from their abusive partners due to their password encryption, or they did not have a computer.

Preferable Apps for Intervention Phone Calls or Text Messages (*n* = 41) Most participants noted several apps they used to communicate, drawing attention to the need to consider incorporating these in a digital intervention, based on the age group and target population of the intervention. Included in this list of apps were weChat, Facebook Messenger, Google Hangout, Instagram, Kakao, Second call, Signal, snapchat, Telegram, textnow, True caller, Twitter, and WhatsApp. As shown in Table 3 (quotes 22, 23, 24), WhatsApp had significant recognition and acceptance among survivors, with most participants ($n = 40$) describing it as the primary app they used to communicate with others. Advantages attributed to WhatsApp included its global prevalence, ease of use, only requiring access to WiFi as

opposed to data plans or minutes controlled by their abuser, and effective privacy features within the app.

Fewer women mentioned the use of SMS Messaging or "regular texting", but those who preferred this method of communication recalled that it was easy to use, and was not accompanied by the vexations of learning how to use an app. However, given the variety of platforms available and the varying needs of diverse immigrant populations, one participant mentioned whichever app is used should be tailored for the target population or intended audience. Additionally, the archetypal requirements of this potential app were grounded in ensuring the safety of all survivors, as highlighted in Table 3 (quote 25).

Discussion

Given the utility of digital interventions for reaching disadvantaged survivors of IPV, (Emezue, 2020; Emezue & Bloom, 2021; Glass et al., 2015, 2017; Sabri et al., 2019), as well as the ethical and safety-related challenges immigrant women may experience in accessing digitized interventions (Sabri et al., 2021c), such as being unable to recognize or manage internet safety risks, this qualitative study sought to explore challenges and safety considerations in conducting digital intervention research with diverse groups of female immigrant IPV survivors. Study findings highlight strategies and components that should be considered for inclusion in digital interventions targeting immigrant survivors of IPV.

Participants shared technological barriers to immigrant women's participation in digital intervention research such as dependence on abuser for survival and/or for access to technology, language or communication barriers, and cultural appropriateness of digital content. Participants also shared methodological safety and ethical considerations for engaging immigrant survivors in digital intervention research. These considerations included ensuring privacy and confidentiality, implementing strong safety protocols in online, phone and text communications, and using trauma-informed approaches to engage survivors. Immigrant populations should also be assured, that digital interventions can be understood regardless of literacy or English proficiency. The approaches to delivering intervention content could include use of code words when contacting participants through text messages, use of covert phone numbers for phone communication, use of pin codes to access digital intervention content, and deleting evidence of involvement in digital interventions. This also included an information session with potential immigrant participants on how to safely access digital interventions and safely communicate over phone and text. Participants also emphasized the need to ask potential participants of their preferred medium of accessing digital content and apps for intervention phone calls or text messages. Other suggestions included providing information about general and immigrant-specific resources, trigger warnings for sensitive content, and alerts for participants in danger.

Participants discussed the need for incorporation of supplementary safety strategies that reflect the needs of IPV survivors more broadly, such as safety and support protocols for addressing mental distress, addressing emergent and ongoing threats from abusers, and non-digital aids such as referrals to local domestic violence shelters. However, in doing so, participants described additional considerations specific to the immigrant women's experience, such as a lack of access to safe technology, fear of deportation, and the need for cultural competence among interventions and access to supports with language. This resonates with research that has shown multiple factors to limit the implementation of IPV- related interventions with immigrants in the US despite their promise for scalability including stigma (Sabri et al., 2019) and communication barriers due to limited English proficiency that is complicated by the need for proficiency in a "cyber language" when accessing digital platforms and content (Ono & Zavodny, 2008). Further, generating interventions for distinct immigrant groups raises concerns for ways to effectively tailor intervention content to address necessary differential cultural subtleties of these diverse populations. Given these barriers, considering the compounded identity of both 'immigrant' and 'IPV survivor' together it is necessary to design safety planning interventions that account for both common and culturally specific risk and protective factors for IPV among diverse groups of immigrants in the US (Sabri et al., 2018a, b).

A key finding from our qualitative data collection with immigrant IPV survivors and providers who serve this population is that it is necessary to incorporate supplementary safety strategies into digital interventions. These strategies ensure that interventions do not exacerbate safety concerns and that the specific needs of these women are addressed to ensure overall well-being. Survivors' accounts of IPV-related mental distress and fear of abuser while using a digital intervention were particularly relevant. Based on recommendations to tailor interventions to women's cultural context and because of concerns over language barriers, there is still a need for traditional human intermediation to some degree despite the practicality and value of existing digital interventions for immigrant survivors. Particularly, our findings on strategies for effective remote data collection for intervention highlighted the need to provide immigrant survivors an interactive experience with a trained research team member on the web/app and text interventions, in addition to tailoring the intervention to a woman's particular

situation. In addition to tailoring around culture and language, participants also highlight a need to tailor intervention content to address the mental health needs of immigrant survivors of IPV who are trauma-exposed and may be living in continued fear of their abuser.

While necessary to meet survivor needs, reliance on both digital interventions and human interaction requires diverse safety protocols that can be effectively implemented in these different modalities. In particular, the use of digital content without direct human involvement on the provider side requires that research study staff undergo in-depth training to identify participants who are at-risk of immediate harm based on participant responses, in addition to developing a set protocol to respond to women who indicate that they are not safe and/or threaten harm to themselves or others. The incorporation of effective resources for non-digital aid should be located and communicated to participants who report feeling distress, including referrals to local domestic violence shelters or service providers. A thorough, culturally sensitive, and state-specific awareness and explanation of "mandated reporter laws" to participants is a critical component to be incorporated into every digital intervention, as well. These laws require that physicians or health care workers, report reasonably suspected or confirmed abuse to governmental or law enforcement authorities (Lippy et al., 2020; Sachs, 2007). Additionally, the use of digital interventions raises greater concerns for those who are completing the intervention at home or in the same space as an abuser. Some participants in this study cited trepidations about digital interventions due to fears of increased partner abuse out of retaliation. Comprehensive education regarding safety precautions, including only accessing intervention materials using a secure server and encrypting passwords need to be emphasized extensively with survivors to avoid potentially dangerous situations with an abuser (Emezue, 2020). Strategies suggested by our study participants included use of participants' preferred code words in communicating over the phone or text and use of covert phone numbers when calling participants. Other strategies included providing unique pin codes to each participant to access the digital content, reminding them to delete evidence of intervention involvement (e.g., clearing browsing histories), and to only engage with the intervention at safe times. It was also important to tailor the medium of delivery based on participants' preferences such as medium to access online intervention (phone or computer) and preferable apps for receiving phone calls or text messages (e.g., Whatsapp). There is a significant need to institute intuitive and secure digital environments that both account for immigrant- and IPV survivor-related concerns, and also ensure sustained safety throughout the intervention.

One of the barriers to immigrant women's participation in research is cultural concerns related to difficulty trusting strangers with such a personal, often 'taboo' issue (Sabri et al., 2021c). Lack of trust in disclosing abuse could be addressed by building strong rapport (Burgess-Proctor, 2015; Tarzia et al., 2017) and personalizing the intervention experience to the survivor. App-, phone-, and text-based interventions demand the use of an "ideal correspondent" from the research team on the receiving end of intervention communications to foster a sense of comfort and familiarity with participants. Current literature on the efficacy of patient-provider language concordance, gender concordance (especially among female patients), and cultural competence in healthcare settings inform the suggestion to incorporate a similar tenet into digital interventions (Bertakis & Azari, 2012; Diamond et al., 2019; Flynn et al., 2020; Hsueh et al., 2021; Jang et al., 2021). For female immigrant survivors, the ideal correspondent is language-concordant, of a similar ethnic background, and culturally competent (Sabri et al., 2021c).

Strengths and Limitations

The perspectives of both providers and survivors from diverse immigrant groups elicited using group and individual-based data collection methods strengthen the findings and offer an important contribution to knowledge on the use of digital interventions with immigrant IPV survivors. The permeation of technology and devices into daily life gives rise to greater opportunity for reaching immigrant IPV survivors with digital interventions who have typically encountered difficulties in accessing existing safety resources. This study highlights necessary considerations for creating both effective and culturally appropriate means of reaching immigrant IPV survivors with new digital interventions. Additionally, it draws attention to how technology and digitized communication can potentially reach wider geographic audiences and immigrant survivors who otherwise might be unable to attend in-person interventions due to control from an abusive partner or fears of surveillance.

In terms of limitations, study findings reflected women's thoughts and experiences on topics that are often the subject of stigma, which may have shaped the way women shared their perspectives, particularly in focus groups, as these are likely to produce more normative descriptions and can lead to underreporting or misreporting of information. The study also involved immigrant survivors from selected countries of origin as well as service providers working in certain geographical regions in the US. As a result, the findings may not be representative of the experiences of immigrant women from other countries or organizations in other areas of the US. We were not able to engage in follow up interviews with women to further delve into topics and themes of importance that arose during the study or during analysis.

Recommendations for Future Studies

Future studies should explore perceived benefits of potential technologies and media avenues through which survivors can determine which one presents maximum benefit and least opportunity for harm, including using quantifiable measures of success such as the Systems Usability Scale (SUS) to determine feasibility and accessibility of digital intervention strategies (Choo et al., 2016). The results of this study brought to light significant barriers related to communication, digital safety, and varied cultural groups of immigrant IPV survivors, which demands further research on best practices for tailoring and implementing easy to understand, personalized components within digital interventions. There is a similar need to integrate identified strategies, such as code words between the participant and intervention and non-traceable or private phone numbers. Subsequent research can utilize these findings to build upon existing research and adapt them to digital interventions with similar vulnerable populations.

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Declarations

Conflict of Interest The authors declare that they have no conflict of interest.

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