

Domestic Violence Service Providers' Needs and Perceptions of Technology: A Qualitative Study

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Abstract:

There is growing recognition of the need to better understand the intersections between the work of domestic violence service providers and technology. Professionals who work with clients impacted by domestic violence are increasingly using technologies across different aspects of their work, including communicating with other professionals and seeking information and resources via the Internet. The current study used qualitative data from two sources—individual interviews and two focus groups—to learn about domestic violence service providers' needs and perceptions related to technology use. The results provide insights about technologies used currently, expected benefits of future technological advances, barriers to using technology, and participants' self-rated levels of comfort with technology.

Keywords: domestic violence | human services | technology | technology readiness

Article:

Domestic violence (DV) remains a significant public health and social problem. Domestic violence, which also may be referred to as intimate partner violence, describes “physical, sexual, or psychological harm by a current or former partner or spouse” (Centers for Disease Control and Prevention, 2014, para. 1). According to the latest National Crime Victimization Survey published in 2005, approximately 5.9% of women and 2.1% of men are victims of non-fatal domestic violence in the United States each year (National Institute of Justice [NIJ], 2009). Just over 50% of female victims who responded to the survey were injured as a result of domestic violence, and more than 3% were victims of sexual assault (NIJ, 2009). Additionally, the Federal

Bureau of Investigation reported that 1,510 people were killed by their intimate partners in 2005 and that the proportion of female victims killed by an intimate partner is increasing (NIJ, 2009). According to the World Health Organization (WHO), DV and sexual assault “are major health problems and violations of women's human rights” (WHO, 2013). High rates of domestic violence yield dire implications for individuals and communities, making DV intervention and treatment programs vital to public health and safety.

A variety of human service organizations are involved in responding to and preventing DV. Murray and Graves (2012) defined the DV response system as various components of the larger community systems that are “in place to respond to intimate partner violence ... this includes legal, healthcare, social service, victim advocacy, child protection, and other systems (e.g., workplaces, religious institutions, and schools)” (p. 32). Technology is being used increasingly within and between these systemic components as part of community prevention and interventions to address DV (Murray, Chow, Marsh, Croxton, & Poteat, in press). For example, police departments may use technology to analyze crime data, as well as to transmit information about calls to local emergency management systems. Social service organizations—including mental health and DV agencies—often maintain electronic records to track and monitor client data. Many advocacy organizations also maintain websites to provide information about the dynamics of DV and resources that are available to help. Also, professionals who work to address DV may use technology to seek current, evidence-based information to help guide the decisions they make about their work (Murray et al., in press).

Given the diverse applications of technologies that are used in organizations that address DV, information technology (IT) professionals who develop and implement technology systems for human service organizations must consider the unique needs of these professionals and organizations to ensure that technologies are suitable and relevant to the various components of community DV response systems. The current study was conducted to provide IT professionals and service providers with a better understanding of the technologies that DV service providers may use currently, the capabilities they desire in the future as technology advances, and their personal readiness to embrace them. Two sources of qualitative data were analyzed using content analysis procedures to identify themes and offer implications for technology development. Prior to describing this study's methodology and findings, we review existing literature that demonstrates how technology increasingly intersects with the work of DV service providers.

REVIEW OF THE LITERATURE

Existing research demonstrates numerous intersections between DV and IT, particularly in the following areas: (a) the dissemination of information about DV through technology, including evidence-based practices to professionals, and community-education information to the general public; (b) technologies designed to make community responses to DV more effective and efficient; (c) technology-related benefits and safety risks for DV victims; and (d) the use of technology to facilitate communication among various agencies and individuals that serve DV victims and survivors. The literature outlined in the following section supports the case for collaboration between DV service providers and IT professionals and offers some key examples of how advances in technology can be used to aid in the provision of DV services in important and potentially life-saving ways.

Technological advances spanning the past two decades have ignited the use of online resources to disseminate information to a far wider audience than ever before. Websites and social networking sites have provided the most expedient and efficient means for DV-related organizations to get up-to-date information about risks, safety concerns, and effective interventions out to consumers in the community. Numerous DV organizations now rely upon online media to relate new advances in evidence-based practice to the professionals who serve this population as well as to educate the public at large (Finn, 2000; Joyner, 1999). Joyner (1999) identified three categories of websites used by DV organizations to support their services and aid in DV prevention and education: (a) websites that provide information about evidence-based practices to professionals from an academic perspective, (b) health education sites that offer resources for victims and the community at large, and (c) websites that offer emotional support to victims, including online forums. Finn (2000) surveyed 166 DV organizations about their use of the World Wide Web and reported that agencies primarily used the Web to promote agency visibility and to provide community education. Likewise, female consumers have reported regular use of websites to access DV-related information, with ease of use, perceived usefulness, and awareness of sites among the factors that tend to increase website use (van Schaik, Radford, & Hogg, 2010). Technology is becoming a more integral part of the way DV organizations assist clients and disseminate information to the public about their services, but more studies are needed to provide updated information about the ways in which DV agencies use technology and online media.

In addition to maintaining the most current information related to DV safety and intervention, DV organizations also are using technology to actively promote effective and efficient community response. E-mail, videoconferencing, and electronic monitoring systems have all been used to help protect DV victims, support their physical and emotional needs, and ensure the most expedient interventions possible (Constantino, Crane, Noll, Doswell, & Braxter, 2007; Erez & Ibarra, 2007; Hassija & Gray, 2011). Technology may even enable providers to improve victims' physical and psychological safety beyond existing measures. For example, Erez & Ibarra (2007) interviewed 30 victims who participated in bilateral electronic monitoring programs for DV offenders. The programs required offenders to wear electronic monitoring devices that would alert law enforcement officials if they violated existing protection orders (Erez & Ibarra, 2007). The authors reported positive feedback from the victims in their study and emphasized the ways in which this unique use of technology helped victims avoid the physical and emotional disruption of moving their families to a shelter and instead bolstered their sense of security and control within their own homes.

Despite the potential advantages of technology, a growing concern among DV service providers is the multitude of safety risks that new technology developments present. Trends in social media, personal tracking, and cell phone technology present new and dangerous challenges to keeping victims of DV safe. Previous researchers have described a broad range of technology-related risks, including harassment via mobile phone and text messaging; emotional abuse and public shaming on social networking sites; stalking using Global Positioning Systems (GPS); and use of fax machines, e-mail, spy ware, and online databases to stalk and harass victims (Dimond, Fiesler, & Bruckman, 2011; Melander, 2010; Southworth, Finn, Dawson, Fraser, & Tucker, 2007). It is imperative that DV service providers and victims be educated about these

technology-related dangers by IT professionals who know how to protect against these risks. Finn and Atkinson (2009) provide empirical support for this approach. They conducted an intervention study of the Technology Safety Project of the Washington State Coalition Against Domestic Violence—a program in which IT professionals known as “Tech Advocates” instructed a group of DV service providers and victims about technology safety and help seeking through IT. The authors reported that most participants had been harassed in some way using technology and that most viewed using computers as a way to establish their independence (Finn & Atkinson, 2009). Additionally, most participants in Finn and Atkinson's study reported high rates of satisfaction with the program and increased confidence in keeping their personal information safe online.

Finally, DV service providers are using technology to help them bridge a gap that has long presented one of the biggest challenges to effective intervention and care—the challenge of efficient and accurate interagency communication. Hawkins, Pearce, Skeith, Dimitruk, and Roche (2009) outlined an innovative program for nurses in Massachusetts and New Hampshire called Home Health VNA that utilized Personal Data Assistants (PDAs) as secured hubs for assimilating patient information and making quick referrals. Specifically, nurses in this program used assessment tools loaded onto their PDAs to identify signs of DV and then quickly triage the patient's needs by making referrals to other service providers, including DV advocates and social workers (Hawkins et al., 2009). Information from the nurse's initial assessment could then be shared securely with other service providers and vice versa in order to avoid repetitive questioning and expedite the intervention process (Hawkins et al., 2009). Technology can provide an efficient means of communication—especially in high-risk situations. Yet concerns about confidentiality may give many service providers pause. Sophisticated systems such as the one detailed in Hawkins et al.'s (2009) study would enable DV service providers to communicate with one another about service needs and referrals much more rapidly, while still ensuring the security of client information. This is just one of many important roles for which IT professionals are desperately needed in the DV service arena.

DV organizations are relying more and more heavily on the use of technology to inform the public, expedite service delivery, protect victims, and coordinate services securely. However, technology is changing at a rapid pace and many DV providers lack the time and know-how to maintain systems that are growing in complexity. As a result, skilled IT professionals are becoming increasingly essential to the effective and efficient functioning of these organizations. The literature reviewed here demonstrates the growing connections between DV and technology and the need for updated information about the changing technology needs of DV service providers. The information gathered through the study described in the remainder of this article can provide IT professionals with information to help them develop and implement new capabilities that are relevant to the user population (i.e., DV service providers) and have the potential to enhance and improve upon current practices and communication networks between and among DV service providers and organizations.

METHODOLOGY

This study includes qualitative data from two sources involving 26 participants: a qualitative interview study ($n = 15$) and a pair of focus groups ($n = 5$, $n = 6$).

Qualitative Interview Study Participants and Methods

The first source was a qualitative interview study that was part of a larger study addressing DV service providers' perspectives toward technology and a proposed family justice center in a county in a southeastern state in the United States. This study addresses only the data that related specifically to DV service providers' needs and usage of technology, and the participants' perspectives on the proposed family justice center are reported elsewhere (Author citation). Participants were administrators and service providers working in agencies that served clients impacted by DV. Participants were drawn from one county, and this county includes both urban (i.e., one midsize city and one smaller-size city) and rural areas. The county is located in the central part of a southeastern state. One of the county commissioners worked with the research team to identify a list of prospective study participants, with the goal of inviting key stakeholders in the development of the family justice center to participate. The 15 participants represented various agencies in the county, including nonprofit organizations, governmental departments, law enforcement, and the justice system. Only one representative per agency was included in the sample. Of the participants, nine were female, and six were male. Because participants were drawn from a single county, in order to protect their confidentiality, no additional details about demographic characteristics are presented here.

Each participant was interviewed for approximately 1 hr. The interviews were conducted by teams of two undergraduate and/or graduate students in either Psychology or Information Systems departments at a mid-sized public university in the Southeastern United States. All student interviewers were members of a research team and were involved in this project for at least one semester, and some students had been part of the research project across multiple academic years. The faculty researchers provided training for the student interviewers on how to conduct the interviews and use the interview guide over a series of multiple meetings. During each interview, the lead student used a semistructured interview guide to facilitate the discussion, and the other student served in an assistant role. After the interviewer provided an introduction to the study, the participant had the opportunity to ask questions and sign the informed consent document. There were four parts to the interview: (a) questions about participants' professional backgrounds; (b) questions about participants' work related to domestic violence, sexual assault, and/or child abuse, including the participants' perspectives about barriers faced by the clients they serve; (c) their opinions and suggestions related to the prospect of a Family Justice Center in the local community; and (d) participants' technology use and experience. All interviews were digitally recorded, and they were transcribed following the interviews.

Focus Group Participants and Methods

The second data source was a pair of focus groups with DV service providers to ask them about their technology needs and experiences, especially related to seeking information to use related to their work. A *DV service provider* was defined as staff of battered women's shelters, victim advocates, facilitators of batterer intervention programs, and mental health professionals who provide direct services for clients affected by DV. One focus group was held at a state-level advocacy organization, and the other focus group was held at a community DV and sexual assault agency. Both focus groups included participants representing multiple agencies. The

focus groups were conducted in private rooms in which only the researchers and participants were present. Each focus group lasted approximately 1 hr 30 min to 2 hr.

Participants were recruited in collaboration with staff from the state-level advocacy organization. We aimed to recruit participants representing different types of agencies (e.g., rural and urban; those with and without shelters attached). Five participants attended the focus group at the advocacy organization, and six attended the group at the community agency, for a total of 11 participants across both groups. Ten participants were female, and one was male. Seven participants were Caucasian, three were African American, and one was multiracial. Participants represented such job titles as prevention and education coordinator, therapist, and program director. The participants represented seven different agencies, including those in rural and urban communities and programs with and without shelters.

Two research team members—one faculty member and one doctoral student in an accredited counseling program—attended each focus group. The faculty member was the primary facilitator, and the student was the assistant and notetaker. The focus groups were based on a semistructured interview guide, and the facilitators asked follow-up clarification questions as needed. The topics addressed in the questions on the interview guide included the following: participants' information needs, participants' use and comfort with technology, the specific technological tools that participants believe to be useful and comfortable to use, and the barriers that the participants face to using technology. Each participant received a \$10 gift card and light refreshments as a token of appreciation for their participation. The focus group sessions were digitally audio-recorded and transcribed after the session.

Data Analyses

The data that were analyzed included the transcripts of the 15 individual interviews and two focus groups. The research team followed Stemler's (2001) procedures for content analysis to analyze the data. Each complete statement that participants made represented a coding unit for the analyses. We defined a complete statement as beginning with each participant's first word in response to a particular question and ending with their final word before an interviewer or other participant spoke next. Two graduate students clarified the list of statements prior to beginning the data coding, which was necessary to integrate statements that were bound by other markers, such as being in the midst of a statement when the facilitator interjected with a brief, clarifying statement (e.g., "Oh, I see") during participants' statements. This step helped to ensure that all coders had the exact same set of statements to code.

We used an *a priori* coding strategy (Stemler, 2001), meaning that we used coding categories that were developed before the analyses began. We developed an initial set of codes based on existing research and theory, and the coding system was refined to develop a final set of codes that were mutually exclusive and comprehensive. See the list of topics included in the interviews and focus groups described above for the topics included in the initial code list. The initial set of codes reflected the interview questions, which were formulated to reflect existing literature. To refine the initial coding system, research team members turned to the data to identify other themes that were not reflected in the original codes. Next, four coders completed a pilot test to apply the revised coding system to a selected set of participant statements. In the pilot test, the

interrater agreement was insufficient, so the coding system was further refined through discussion of the codes and descriptors. A second pilot test, also with four coders, was done with a different set of statements, and at this time the coding system showed good interrater agreement. Thus, the full data coding process began at this time. See Appendix A for a description of the codes used.

The statements were divided among four coders so that each one was coded by three research team members. The four coders included two faculty researchers from counseling and library and information studies, a doctoral student in counseling, and a master's student in counseling. By including three coders per statement, we built in a validity check that also permitted us to identify a final consensus code for each statement. This validity check was important for establishing the trustworthiness and quality of our qualitative approach to data analysis (Golafshani, 2003). The final consensus codes were identified as either (a) a code on which all three coders agreed or (b) a code on which two of three coders agreed. When there was no agreement among the three coders, the statement was grouped into the “no code” category and was not included in further content analyses. However, all statements, including those designated in the “no code” category, were included in the calculation of the interrater reliability. The next section presents the results of the analyses, including a description of the themes and illustrative participant quotes for each theme.

RESULTS

In combining the data from the qualitative interviews and the focus groups, a total of 1,010 statements were coded, with three coders per statement, for a grand total of 3,030 codes. The overall percentage agreement was 81.5%. Interrater reliability was calculated using Fleiss' kappa, and it was found to be 0.174. Again, the focus of this study is on the intersections of DV service providers' work and technology. Therefore, in this section, we present the analysis results pertaining to the following categories: technologies used currently; expected benefits of technologies desired for the future; and personal technological readiness. For each category, we present a summary of the key themes that emerged.

Technologies DV Service Providers Use Currently

Participants were asked to describe the technologies they used currently in their work, with an emphasis on communication, agency operations, and client interactions. The participants described a range of technologies, as will be described in this section. Although not technologies, many participants described continued reliance upon face-to-face and regular mail communication as preferred methods of communicating with others. Face-to-face communication was viewed as having advantages over other technology-based forms of communication for the following reasons: (a) this form of contact is easier to document in court (e.g., “If we go into court and have to argue a case and the parent says, ‘Look, well no one ever called me,’ and we can say? ‘Yeah, we did call but you don't have a voice mail situation set up, and so that's why sometimes it's just best to communicate face to face cause we can say, ‘Hey, we did have this visit on such-a-such date’”); (b) some client populations do not have access to technology (e.g., “A homeless person typically does not go around with a cell phone”); and (c) certain job functions are necessarily carried out in person (e.g., in the courtroom).

FAX

Although one participant described faxing as “retro,” participants noted that faxing still occurs for such purposes as receiving documents from the state Medicaid office and faxing releases of information.

TELEPHONE

Telephone communication was used frequently by participants. One participant said, “A lot of ours is just pick up the phone and call somebody and talk to them.” Participants noted that they experienced a growing use of teleconferencing and videoconferencing recently, in part “due to the cost of gas and limited travel and funding.”

SMARTPHONES AND OTHER MOBILE SMART DEVICES

Some participants reported having smartphones that were issued to them through their work. One participant said, “I have a Blackberry that's about saved my life.” Participants also noted using their phones for work-related text messaging.

COMPUTER-MEDIATED TECHNOLOGIES

One participant said, “Everything I do pretty much is via the computer.” As such, computers, often laptops, were used heavily by participants. Most participants reported using e-mail communication, including for intraorganizational and interorganizational communication and some contact with clients. As a participant said, “Among our agency staff we live and breathe by e-mail—and we are chained to our e-mail.” However, one participant said, “We don't do anything confidential over e-mail.” Participants also noted several uses of the Internet related to their jobs. These included searching online for research-based information, participating in webinars, seeking information to assist them in making decisions about their work, and maintaining agency websites. Some participants, however, reported that access to the Internet at their workplaces was limited for confidentiality reasons, as is indicated in the following participant quote: “We can't search the Internet anymore on our work computers because they are worried about people hacking in and getting into our electronic medical records.”

SOCIAL MEDIA

Some participants reported that their organizations used social media platforms. This included Facebook, Twitter, and blogs. One participant said regarding her agency's blog, “I think the blog is a great way obviously and it's also something that can transmit information super-fast.”

SPECIALIZED DATABASES, SOFTWARE, AND AGENCY-SPECIFIC TECHNOLOGIES

Participants described a wide range of specific technologies they used in their work (See Table 1).

Table 1 of 2
TABLE 1 Specialized Databases, Software Programs, and Agency-Based Technologies
Currently Used by Participants

Databases
Criminal records check
Filing of domestic violence claims
Tracking system of homeless individuals across the state
Juvenile justice records (statewide database)
Department of Corrections
Computer-sharing software
Pod diary system
Evidence-based assessment tools
Data management system
Microsoft Office
Microsoft SharePoint
Echo
AIMS
Call center software
Life alert bracelets
Electronic medical records
Medication distribution system
Camera security system
CARE LINK

Expected Benefits of Technologies Desired for the Future

Participants were asked to speculate on the benefits they would expect to gain from future technologies they may acquire. The benefits they listed provide implications as to the ways that DV service providers envision that technological advances could enhance their work. Tangible benefits to new technologies were viewed as important, as reflected in the following participant statement, “We're not for spending money just because ‘Hey, it's a neat gadget,’ we want because it's going to add value.” This section presents the benefits that participants noted.

MAKING DATA AND INFORMATION MORE READILY AVAILABLE

Participants noted that technology could help make the data and information that they need to do their work more readily available and accessible to themselves and others. Participants mentioned that having access to timely, credible information is essential to their work (e.g., for writing grant applications and doing educational presentations in the community). One participant said, “I want to be seen as credible in the information I'm giving out to other people.” In addition, ready access to information can help practitioners make informed decisions about clients. For example, a participant said that a service provider may be working with a client from a military family and might say, “I want to work with a military family that's having DV, let me understand what some reintegration issues are.” Thus, technology can facilitate better access to

information that would help practitioners understand the needs of the client populations they serve. Participants suggested that technological advances also could make information available in other languages.

COST- AND TIME-EFFECTIVENESS

Participants desired technologies that could reduce the costs and time demands on themselves and their organizations. Some specific examples included the cost-effectiveness of teleconferencing instead of face-to-face meetings, reduced time and costs associated with not having to drive to another city to obtain statewide DV statistics, making information available online versus paper copies (which also was noted as being “ecologically responsible”), and making systems operate more quickly.

MORE ACCESSIBILITY AND MOBILITY

Some participants work in organizations in which staff work out in the community and are not often in the same building as their supervisors. Technologies that participants indicated could help in these situations included portable Internet connectivity, GPS devices, and smartphones. Benefits of these advances that were mentioned by participants included access to the Internet and e-mail while out in the field, and the ability to locate staff, enhanced safety.

ENHANCED COMMUNICATION

Participants reported that technological advances could be instrumental in enhancing communication, both within their agencies and with professionals in other organizations. Although confidentiality and privacy issues were noted as complications for this enhanced technology-based communication, participants noted several possible benefits that technology could offer to their communications. They shared that technologies such as improved videoconferencing could be useful for promoting communication among involved stakeholders.

BETTER TRACKING OF CLIENTS THROUGH INTEGRATION OF INTERAGENCY SERVICES AND SYSTEMS

Many participants expressed a hope that future technologies will help them to better track their clients through various social service systems, as well as help to enhance their coordination of services with other involved agencies. For example, they noted that a shared database across agencies could reduce the need for clients to restate their basic characteristics (e.g., contact information) and could provide new service providers with greater information about the client's history across systems. In addition, technologies could help track especially vulnerable clients, as is reflected in the following participant statement:

Now there's these computer systems that you can put in an elderly person's home that tracks the things that they've done throughout the day—so in theory an adult child could be at work and go onto this tracking system and if there's been no movement in the house for two hours or something you know—is mom and dad OK? They can track whether they've taken their medicine.

Shared technologies also could help to avoid duplication of services, such as if clients are already receiving services at one agency and are being considered for similar services at another agency. One participant summarized this issue by stating, “If there were a way to connect the dots a lot of times between the various agencies as it relates to domestic abuse is there technology that currently exists that allows you to connect the dots.”

REAL-TIME UPDATES OF RECORDS

Participants indicated that documentation is a critical piece of the work that they do. Participants expressed that they would appreciate technologies that facilitated the documentation process in real time. One participant shared that they were in discussion with a technology company regarding the following:

They are looking at giving us a proposal for the social workers to have almost like the I-pad type mechanism to where they can go out and they can actually access their files electronically, and then it uploads into the system to where they don't have to do double work, because right now they go out, meet the family and put it all on paper, have to come back and enter it all into the case management system, so they are looking at technology that will do that while they can type it while they are in the field, and automatically uploads into the system to where they don't have to double work—that wastes a lot of time.

BETTER MANAGEMENT OF EXISTING RESOURCES

Participants desired technologies that could help their organizations better manage the resources they already have available to them. For example, one participant said:

We're constantly looking at what's on the market from um—would this work for us. You know one of the things we're really looking at right now is inventory control, arcade scanners, and how to—how to manage the resources that we already have so—everything from that to what we run from our own warehousing and inventory supplies put out to what's out on the street. Participants also mentioned resource management as it related to organizational accounting and interactions with third-party funders.

UPDATES TO CURRENTLY USED TECHNOLOGIES

In addition to perceived benefits to new technologies, participants described that they would appreciate more updated versions of the technologies that they use currently. For example, a law enforcement official expressed a desire to upgrade their radio system. Other participants desired newer versions of their computer software programs and smartphone technologies.

Barriers to Technology Use

Participants noted several potential barriers to technology usage, including organizational, situational, technological, and other adoption and coordination barriers.

ORGANIZATIONAL BARRIERS

Participants noted three primary organizational demands that could present barriers to technology use. First, “confidentiality would be a huge, huge issue.” One participant said more specifically, “Probably the standard legal liabilities even the issues that may come about when—when you're trying to share information, or protect information.” The security of confidential client data is therefore a significant barrier to address when developing technologies for DV service providers. Second, limited funding was mentioned as an organizational barrier to technology adoption and use. For example, one participant said, “Maintaining it and staying ahead of the curve trying to get the funding and resources necessary to put it in to start with and keep it in there.” Third was the need for extensive training on technologies within organizations, as is reflected in the following participant statement:

Training is always trying to get everybody. You know, some folks are techno geeks and some folks like me aren't, and trying to keep everybody to the level that is the base line is always something when something new comes, and trying to evaluate those things.

SITUATIONAL BARRIERS

Five situational barriers related to the unique dynamics of DV as they would relate to adopting new technologies. First, safety considerations must be addressed, because “abusers can be very sophisticated in trying to find information on the victim.” Second, there is a need to protect victims from abusers who may have access to victim information because of their jobs. As one participant said, “Sometimes the abuser is a policeman.” Third, because DV service providers tend to have very busy, time-consuming jobs, this could leave minimal time available to learn new technologies. For example, a participant said, “I probably would wish that I knew more about this stuff, texting and cell phone stuff. But, I don't have time.” Fourth, accessibility for clients and service providers with disabilities was a concern, especially with already limited financial resources that typically are available to these agencies. Fifth, because DV is such a multidisciplinary topic, every involved professional group has different professional ethical standards and protocols to follow, which could present challenges when attempting to integrate systems across disciplines.

TECHNOLOGY-SPECIFIC BARRIERS

Participants noted two technology-specific barriers that could limit their use in DV service agencies. First, some participants viewed any technology-facilitated conversations as being less valuable than face-to-face dialogue. As one participant said, “It's not as good as being here or seeing folks.” Second, technical problems can create additional job stressors that service providers may not have time and resources to address. For example, a participant said, “Maintenance software that may go askew; administered outside the agency ... and that is sometimes easier to somehow the computer is not functioning.”

ADOPTION AND COORDINATION BARRIERS

More general barriers that participants noted included the following: (a) determining how to adopt technologies within organizations when there are varying levels of technology readiness and comfort among staff members; (b) technologies cannot overcome human error and human problems, such as failing to respond to electronic communications; (c) that it can be difficult to decipher the credibility of information on the Internet; and (d) agencies will have different levels of access to and resources related to technology, so coordinating technology across organizations can be barrier. Finally, while technology was viewed as having potential benefits, participants noted its limited ability to solve many of the major problems they face. As one participant said:

You got federal cutbacks, state backs, donor cutbacks in general that you know turns into people being laid off or positions being frozen and, and not filled and that equals more work for everybody. And you know there's just there's no technology that's gonna fix that. You just need more bodies. You need more bodies handling the work. There's no technology that's gonna ... fix that.

Personal Technology Readiness

In the individual interviews, participants were asked to rate themselves on a scale from 1 (*very low*) to 10 (*very high*) in terms of level of comfort with technology. Participants varied, with the lowest rating being a 2, and the highest being an 8. Several participants made statements reflecting anxiety about technology, such as the following: “You picked sort of the worst person in the agency to interview” and “I feel like I don't have much to share with you guys regarding the technology piece—I mean I think that like that's not even in my realm of thinking.” In this section, we present some statements that reflect participants’ varying level of comfort and readiness to use technologies.

A FEMALE PARTICIPANT WHO RATED HERSELF A 3

This participant said:

I have done things my way, which is usually on a card file for so long, and I know ... there is a saying that you can't teach an old dog new tricks. But, I did master the Internet, so that means I can.

A MALE PARTICIPANT WHO RATED HIMSELF A 6

This participant said:

I try to get on board with different applications or things that come that I know that could help. But I am real good at learning if somebody spends some to time to teach me. Now how long it takes to teach me might be a challenge. But I am involved with it.

A MALE PARTICIPANT WHO RATED HIMSELF AS A 6 OR 7

This participant said:

I may not be that skilled ... I can use it for what I want to use if for but when it comes to figuring out how—and then again it's a matter of figuring out the programs that you're using.

A MALE PARTICIPANT WHO RATED HIMSELF AS AN 8

This participant said:

You ask me if I do the social networking stuff, no, I oversee my 13-year-old making sure that she is not getting in trouble on Facebook or whatever, no, but do I do e-mail, yes—do I use the computer everyday—absolutely. Do I use spread sheets that kind of thing? Sure.

DISCUSSION

Summary of Major Findings

The participants in this study reported using a wide range of technologies, including those that have been around for a long time (e.g., fax and telephone), newer advances (e.g., smart devices or social media), and specialized technological programs that are agency specific. One important finding was that, despite the advantages that new technologies may have, DV service providers may prefer nontechnology-based forms of communication and record keeping. In particular, face-to-face communications and paper-based resources may be critical to successful outcomes in court proceedings and for reaching clients without access to technology. Given the economic barriers that victims and survivors of DV may face, technological devices, such as computers and smartphones, may not be accessible to the client populations that DV service providers encounter. However, participants did note the importance of technology to their work, supporting the research cited earlier about the increasing links between technology and the work of DV service providers. The diversity of specific databases and software programs (e.g., for filing domestic violence claims, seeking juvenile justice records, and maintaining secure client electronic records) demonstrates the vast array of technology advances that can help to promote more efficient service provision to clients impacted by DV.

Participants noted several benefits that new and improved technologies could offer to their future work. These included increasing the accessibility of the data and information they need to do their work, increasing the efficiency of their work in order to save time and money, helping them to stay connected with their colleagues and others when doing community-based work, improving communication with other professionals and clients, providing more integrated and seamless services to clients, strengthening their procedures for keeping records, and helping them to manage their resources more effectively. In addition, several participants noted that they were hopeful that newer versions of the technologies they are using currently would provide enhanced support for their work.

Despite these perceived benefits derived from technology, the DV service providers who participated in this study also noted that there are significant barriers that could prevent them

from adopting and using new technological advances. Participants noted several barriers related to the safety and confidentiality needs of the client populations they served. In addition, many DV service organizations have limited financial and staffing resources, so new technologies could be cost prohibitive and not feasible if they do not account for the limited time and effort available to implement them. Participants also cautioned that the dynamics of abuse within DV must be considered when developing new technologies. For example, technologically savvy perpetrators may be able to hack into client records and gain sensitive information about victims that could put their safety at risk. Additional barriers may arise for technologies designed to enhance communications between agencies, especially when different organizations have different legal and ethical requirements to uphold. Technologies also can present some direct barriers. In particular, participants noted the troubles that can arise when technological problems occur, and these can be especially challenging for resource-limited organizations.

Another important potential barrier is the different levels of openness to technology among professionals working in the field. However, participants varied in the ways they described their levels of comfort with technology (i.e., technology readiness). As human service workers, it is not surprising that many participants reported limited experience with technological advances, resulting in some anxiety about their abilities and comfort with using and learning new technologies.

Statement of Limitations

Participants were drawn from one state only, and interview participants were from one county within that state. Therefore, geographical and regional influences may impact participants' perspectives on technology. Also, the use of data from both interviews and focus groups provided different data collection procedures, each with unique advantages (e.g., the depth of responses in individual interviews and the group dialogue that emerged through the focus groups). However, these differences also could be considered a limitation in that the data were collected in different ways and using different sets of interview questions. A third limitation is that we included participants representing a diversity of agencies, which allowed for a consideration of how technology is used across various segments of the DV response system in communities. However, it also precluded an in-depth examination of specific technologies used in each agency. Finally, the interrater agreement was somewhat low, with the Fleiss' kappa coefficient indicating slight agreement (Landis & Koch, 1977). This could have been an artifact of our decision to use the complete participant statements as the coding unit. Some statements included multiple distinct ideas, leaving the coders to select only one code they best fit those statements. More subjective interpretation was, therefore, involved in the coding process, in that the coders could have viewed different aspects of these statements as being more or less important. Because of the number of statements that required coding and the extensive amount of data involved, using the full statement-level coding units was deemed necessary to keep the study feasible, although this decision could have impacted the interrater agreement. Therefore, we built in a validity check by having three coders per statement in order to identify consensus codes.

Implications for the Development of New Technologies for DV Service Providers

The findings of this study affirm the growing intersections of technology and DV. Professionals who work with clients impacted by DV use technologies in a multitude of ways, including for seeking information about how best to serve clients (Finn, 2000; Joyner, 1999), to improve community responses to DV (Constantino et al., 2007; Erez & Ibarra, 2007; Hassija & Gray, 2011), and to communicate with other involved professionals (Hawkins et al., 2009). Community response systems to address DV often involve a number of agencies, each with a unique function, such as law enforcement agencies, battered women's shelters, and court systems. Technology-based applications may be used to facilitate communication and collaboration among professionals in these different settings. However, the functions and rules governing these organizations can vary widely. Therefore, the same technologies may not be able to be used, in the same ways, across different agencies. Information technology professionals must consider the unique goals of these various organizations when developing technologies. Even when technologies may not be able to be used across different agencies, it is possible to develop agency-specific technologies that could enhance interorganizational collaboration. For example, a client records management system for a battered women's shelter could provide easy access to contact information for local organizations so that DV service providers and their clients do not need to take extra steps to locate this information.

Although not a direct focus of the current study, there is growing recognition of both the advantages and perils of technology for victims of DV (Dimond et al., 2011; Melander, 2010; Southworth et al., 2007). Technology can provide unique forms of support and resources to victims and survivors, such as helping them to connect to support groups and helping them to find information about local resources in their communities via websites. However, using technology also can present significant safety risks and privacy concerns for victims, especially in cases in which perpetrators use technology to track, monitor, threaten, or harass victims. Participants in this study noted the importance of considering safety issues when developing technologies to support the work of DV service providers. Therefore, technologies to address any aspect of DV should be developed to address these safety concerns and promote the well-being of clients. In particular, the issue of access to information becomes tenuous when technologies are developed to share information between agencies. One participant shared an example of a perpetrator being a policeman, which demonstrates the importance of ensuring that protections are in place to ensure that every step is taken to avoid potential abusers accessing information when interagency communication technologies are created.

Overall, technology offers many potential advantages to enhancing the work of DV service providers, although, as our study showed, there are a number of barriers that must be overcome when developing new technologies. Professionals can vary widely in their openness to using new technologies, as is evident by participants' diverse ratings of their personal levels of comfort with technology. DV service providers may have limited training related to using technology, which could contribute to some anxiety about using new technology systems. Therefore, IT professionals may enhance the use of new technologies they develop by providing sufficient training to DV service providers.

Technologies to be used in these settings must have reasonable requirements for time, cost, and staffing. In particular, many of the agencies in which DV service providers work have limited financial resources and heavy client caseloads that leave limited time available for addressing

technology-related challenges. These agencies are mandated first and foremost to meet the needs of their clients, many of whom are in crisis situations and may face immediate safety risks. Ideally, technologies can be used to promote greater access to more seamless services and help victims and survivors become safer. However, technology developers must be mindful of the realistic constraints faced by many DV service providers and the organizations in which they work. The findings of this study suggest that DV service providers would welcome technology advances that help them be more effective and efficient in the work they do, especially when these advances are in-line with their organizational needs and are feasible to implement using available resources.

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APPENDIX 1 Description of Code

Code name	Number of coded statements per category	Description
NW: Nature of the work of DV service providers	231	Information about the needs of clients served by DV service providers; their working conditions (making a firm distinction between “active” and “incidental” information practices. Identification of potentially helpful information and their sources, Serendipitous encounters, that is being given information without active seeking. Planned encounters with potentially helpful information sources. Referrals to potentially helpful sources. Proxy searchers. Making connections with potentially helpful sources.); General background information needed to communicate with technical staff about the work of DV service providers; this category does not address anything related to technology. Note: This category may include references to collaborations within the agency, but should not include references to collaborations outside the home agency (that would fall under Partnerships).
TC: Technologies used currently	113	Information about various technologies DV service providers use in their work now, including those used for communication; day-to-day tasks such as assessments or victim advocacy, decision making, etc., this category includes perspectives about advantages and disadvantages of technologies used currently.
EB: Expected benefits of technologies desired for the future	88	Information about service providers’ perspectives about advantages of technologies desired for the future. Benefits may relate to the extent to which technologies could improve communication abilities, increase productivity, reduce costs, reduce errors, and improve information sharing.

P: Partnerships	111	Information about collaborations, coordination, and communications with other agencies; this category will address service providers' <i>needs</i> related to communication across agencies, not specific to any particular technologies that are used for communication. Topics that may fall in this category include service providers' perceptions of other agencies' abilities (i.e., competence), benevolence, and integrity.
<i>P-S: Partnerships: Satisfaction</i>	20	<i>Statements specifically related to satisfaction with partnerships.</i>
<i>P-RT: Partnerships: Relational trust</i>	8	<i>Statements specifically related to relational trust.</i>
<i>P-O: Partnerships: Other</i>	83	<i>Statements addressing partnerships but not specific to satisfaction or relational trust.</i>
B: Barriers: Compatibility and uncertainty	47	Information about service providers' perceived barriers to technology usage. These barriers generally will be three types: a. Organizational (including organizational culture, and resources available); b. situational constraints, the constraints associated with the nature of the problem or specifics of the case; and c. technological (relate to features of the technology, i.e., they should not relate to the individuals' level of comfort with technology). Topics that may be addressed in this category include how well technology is compatible with current organizational processes, current situation, people involved (both victims, and service providers) views about the stability of new technologies, and how well technologies can be maintained over time.
<i>B-O: Barriers: Organizational</i>	17	<i>Statements relating to organizational barriers.</i>
<i>B-S: Barriers: Situational</i>	13	<i>Statements related to situational constraints.</i>
<i>B-T: Barriers: Technological</i>	6	<i>Statements related to barriers related to features of the technology.</i>
<i>B-O: Barriers: Adoption and coordination</i>	11	<i>Statements that relate to barriers to technology usage, but that do not fall into one of the other subcategories.</i>
TR: Personal technology readiness	29	Information about participants' personal and organizational levels of technology comfort and readiness. This category also includes attitudes toward technology and perceptions of personal barriers to technology usage, such as existing

		staffing, knowledge structures, background, characteristics and abilities of both victims and service providers.
FJC: Family Justice Center	173	Statements that reflect participants' perspectives about a possible Family Justice Center.
<i>FJC-I: Ideas</i>	<i>47</i>	<i>Ideas about what the Family Justice Center could look like; potential services and functions, including expected advantages/benefits of having a Family Justice Center.</i>
<i>FJC-S: Steps</i>	<i>88</i>	<i>Steps needed to make the Family Justice Center a reality; including resources to consult during the development process, including steps that may be needed to overcome potential barriers that may be encountered when developing the Family Justice Center.</i>
<i>FJC-T: Technology</i>	<i>30</i>	<i>Technology needs for the Family Justice Center.</i>
<i>FJC: No sub-code</i>	<i>8</i>	<i>Statements that relate to the Family Justice Center, but that do not fall into one of the other subcategories.</i>
NC: No code	218	Applies to any statement for which none of the other codes fit.

Note. Subcategories within selected broader categories are indicated in italicized text. Statements coding into the categories of the Nature of the Work of DV Service Providers, Partnerships, Family Justice Center, and No Code are not included in the analysis and reporting of this study. Statements within the Family Justice Center codes are reported elsewhere (Author citation), and statements that fell into the Nature of the Work, Partnerships, and No Code category were deemed to be unfitting of the coding system.

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