

Characteristics of Intimate Partner Violence and Survivor's Needs During the COVID-19 Pandemic: Insights From Subreddits Related to Intimate Partner Violence

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Abstract

Intimate partner violence (IPV) increased during the COVID-19 pandemic. Collecting actionable IPV-related data from conventional sources (e.g., medical records) was challenging during the pandemic, generating a need to obtain relevant data from non-conventional sources, such as social media. Social media, like Reddit, is a preferred medium of communication for IPV survivors to share their experiences and seek support with protected anonymity. Nevertheless, the scope of available IPV-related data on social media is rarely documented. Thus, we examined the availability of IPV-related information on Reddit and the characteristics of the reported IPV

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during the pandemic. Using natural language processing, we collected publicly available Reddit data from four IPV-related subreddits between January 1, 2020 and March 31, 2021. Of 4,000 collected posts, we randomly sampled 300 posts for analysis. Three individuals on the research team independently coded the data and resolved the coding discrepancies through discussions. We adopted quantitative content analysis and calculated the frequency of the identified codes. 36% of the posts ($n=108$) constituted self-reported IPV by survivors, of which 40% regarded current/ongoing IPV, and 14% contained help-seeking messages. A majority of the survivors' posts reflected psychological aggression, followed by physical violence. Notably, 61.4% of the psychological aggression involved expressive aggression, followed by gaslighting (54.3%) and coercive control (44.3%). Survivors' top three needs during the pandemic were hearing similar experiences, legal advice, and validating their feelings/reactions/thoughts/actions. Albeit limited, data from bystanders (survivors' friends, family, or neighbors) were also available. Rich data reflecting IPV survivors' lived experiences were available on Reddit. Such information will be useful for IPV surveillance, prevention, and intervention.

Keywords

anything related to domestic violence, domestic violence, disclosure of domestic violence, assessment

Introduction

Intimate partner violence (IPV)—“physical violence, sexual violence, stalking, or psychological harm by a current or former partner or spouse”—is a global public health problem (Centers for Disease Control and Prevention, 2018). The incidence or severity of IPV has increased during the COVID-19 pandemic, particularly among marginalized groups (e.g., essential workers or those with low socioeconomic status [SES]) due to the public health measures, such as social distancing, shelter-in-place, school and business closures, and travel restrictions (Gosangi et al., 2021; Jetelina et al., 2021; Peitzmeier et al., 2021). It has been well acknowledged that IPV exerts a wide range of negative impacts on survivors, their family members (children in particular), and society. For example, IPV survivors and their children are more likely to experience adverse physical and mental health outcomes (Chan et al., 2018; Chiesa et al., 2018; Lacey et al., 2013; Smith et al., 2018). IPV costs the national economy nearly \$3.6 trillion (2014 US\$) over survivors' lifetime (Peterson et al., 2018).

Collecting IPV-related data is a complicated undertaking for several reasons. From official data reports (e.g., government-issued data), it is difficult to draw firm conclusions about trends of domestic violence (DV) over time or geographic areas and to create estimates sensitive enough to assess the impacts of broader social trends or interventions on DV (Schwab-Reese et al., 2018). Also, surveys require participant disclosure, which is subject to certain biases. Survey respondents may intentionally withhold information about IPV due to social desirability, embarrassment, concerns about confidentiality, or repercussions of reporting the violence (Schwab-Reese et al., 2018). During the pandemic, anecdotal reports (Boserup et al., 2020), one-time online surveys (Jetelina et al., 2021), or medical records (Gosangi et al., 2021) helped grasp the extent of the pandemic's impact on IPV (e.g., frequency and severity). However, these numbers may still underestimate the true scale of victimization, facilitated by the greater control exerted by the perpetrator, the change and diminished availability of services, and the fear of contagion (Moreira & Pinto da Costa, 2020). In addition, IPV-related injuries could have been overlooked or misinterpreted while healthcare providers were overwhelmed by a vast number of COVID-19 patients in the emergency department (Gosangi et al., 2021). Therefore, more robust and actionable complementary data are needed to define the characteristics of IPV, allowing for the reformulation and development of strategies to prevent and respond to IPV and minimize the impact of public health crises on the initiation or precipitation of victimization (Moreira & Pinto da Costa, 2020).

The COVID-19 pandemic presented a new opportunity to explore non-conventional and informal data sources, such as social media data, which may serve as an alternative and supplement findings from conventional data sources to conduct surveillance and develop strategies to prevent and intervene with IPV more timely and effectively (Kim et al., 2021). Social media adoption is at an all-time high, and information shared over social media has widespread reach and penetration (Merchant & Lurie, 2020). More than 4.7 billion individuals use social media regularly, and many for extended periods (Dixon, 2022b). During the pandemic, social media has been by far the best source for collecting live streaming data accurately, unobtrusively, at scale (i.e., a large number of observations), anonymously, discreetly, and at low cost (Lin et al., 2014; Schwab-Reese et al., 2018). Social media became the primary source of people's information, opinions, and experiences during the lockdown (Koeze & Popper, 2020). Of importance, IPV survivors' patterns of sharing their sensitive information provide leverage to reach out to them on social media: IPV survivors most likely share their concerns with a friend (64%), family member (49%), spiritual or religious advisor (34%), school staff (28%), or healthcare provider (26%). Fewer women discuss the violence with police (23%) or a DV

shelter advocate (20%). Although 60% of IPV survivors discuss their plans (safety plan or plan to leave the relationship) with someone, they discuss the plans with informal sources, such as friends or family members. Fewer women discuss their safety plans with formal sources, such as a local shelter advocate (14%), therapist (12%), or doctor or nurse (7%) (Glass et al., 2010). Indeed, a body of literature shows that social media users publicly discuss sensitive topics (e.g., substance use) with their peers (Groth et al., 2017; Sahota & Sankar, 2020; Sarker et al., 2016, 2019). However, social media has been underutilized for the selection, organization, and presentation of IPV-related data for research, practice, and policy around this topic.

Among multiple social media platforms, Reddit has gained popularity over recent years as a resource for conducting health-related studies (Lea et al., 2020; Liu et al., 2020). Reddit also has a massive user base, with 430 million monthly active users reported in 2022 (Dixon, 2022a). In the United States, individuals who are men, aged 18 to 29 years, or with higher SES (income and education) are more likely than their counterparts to have ever used Reddit. In addition, 17% of Black and 14% of Hispanic adults (17% of White adults) reported having ever used Reddit (Pew Research Center, 2021). Reddit allows users to remain completely anonymous, cultivating rich discussions about sensitive health-related topics like drug use and addiction (Arshonsky et al., 2022; Graves et al., 2022), anxiety (Low et al., 2020), eating disorder (Nutley et al., 2021), vaping (Wu et al., 2022), and suicidal ideation (Redondo-Sama et al., 2021). Presumably, such anonymity attracts many IPV survivors to Reddit, who wish to share their experiences, ask questions, and exchange information with other survivors covertly. Although Reddit data, like surveys and medical records, are not without limitations, they may be better for collecting quality data naturally with less reporting biases, in almost real-time, and at scale and low cost. Reddit is not a forum for self-promotion, image-branding, or other individual-oriented metrics but operates on an “idea-centric” model. Consequently, Reddit data tend to have less noise and contain personal experiences regarding specific topics (Graves et al., 2022). Further, Reddit data may not be generalizable but targeted. It can provide opportunities for researchers to return outcomes of research (e.g., interventions) and benefit the communities from which the data were collected.

Previous studies using Reddit data aimed to automatically classify health outcomes, uncover embedded patterns of language use (e.g., sentiment or frequently used words) (Low et al., 2020), or extract meanings or themes (Arshonsky et al., 2022; Kepner et al., 2022; Nutley et al., 2021; Thomas et al., 2019). The methods used included natural language processing (NLP) and machine learning (Low et al., 2020), purely qualitative analysis (e.g., thematic analysis or content analysis) (Arshonsky et al., 2022; Kepner et al., 2022;

Nutley et al., 2021; Thomas et al., 2019), or both (Wu et al., 2022). Most of the studies adopted a cross-sectional study design, in which they collected Reddit data one time during a certain period of time. Some studies collected data within a single subreddit (Graves et al., 2022), while others did across multiple subreddits (Kepner et al., 2022; Nutley et al., 2021). The size of the analyzed data greatly varied depending on the study's purpose and method. For instance, studies using NLP and machine learning used hundreds of thousands, if not millions, of Reddit posts, whereas qualitative studies used as small as 50 (Lyons & Brewer, 2022) up to hundreds of Reddit posts for in-depth analysis (Kepner et al., 2022; Nutley et al., 2021; Redondo-Sama et al., 2021; Wu et al., 2022).

The use of Reddit data for IPV research is novel and will contribute to understanding IPV survivors' lived experiences in their own words. This pilot study aimed to (a) test the availability of IPV-related data on Reddit, (b) characterize the reported IPV, and (c) identify IPV survivors' needs using narrative data on Reddit via social media data analytics and manual annotation.

Methods

Data Collection

We collected publicly available Reddit data written in English from four IPV-related subreddits (*/r/domesticviolence*, */r/abusiverelationships*, */r/AbuseInterrupted*, and */r/relationships*) via the Python Reddit Application Programming Interface (API) Wrapper (PRAW). We hand-searched these subreddits using such keywords as IPV, DV, abuse, and abusive relationship. We read the first few posts and decided to use these subreddits as their users had been discussing IPV experiences and supporting each other. We chose Reddit as a setting for data collection because the platform houses narrative data with rich and detailed descriptions of the experienced violence, possibly attributed to no imposed limitations on the length of the text per post and guaranteed anonymity. Users who were/are in abusive relationships can access and post on these IPV-related subreddits. There is no screening or vetting process. Some users create throwaway accounts to post on these subreddits anonymously, often disclosing this information at the beginning of their posts. A throwaway account is a temporary account used to post and comment on Reddit without tying it to users' main accounts. It indicates that the users' real identities will not be found if others try to research their posts. A throwaway account allows users to post sensitive information without creating an audit trail of posts (Okumoko, 2022). In addition, subreddits suggest several random usernames, which could help cover users' identities when posting. Perpetrators can browse these subreddits. However, */r/domesticviolence*, for

example, makes it clear on the landing page that abusers are not welcome in this community. There are moderators who will censor inappropriate, dangerous, or hateful posts. As a result, the communities can be maintained to serve their original purposes, supporting IPV or DV survivors.

The data were collected during the COVID-19 pandemic between January 1, 2020 and March 31, 2021, accruing a total of 4,000 IPV-related Reddit posts. Although each thread constitutes an original post (OP) and comments (a thread of replies), we collected only OPs for data annotation since they were more informative than comments by providing contexts to comprehend the reported incidents. Also, we filtered out OPs with a score of less than three. Each score represents the number of downvotes subtracted from the number of upvotes. Users can engage with content by granting upvotes and downvotes to determine the content's rank, where OPs of higher scores will be more visible to other users (Reddit, n.d.). By limiting our data to OPs with a score of three or above, we could weed out OPs with low interactions. As a result, we had a final set of 2,924 OPs, from which we randomly selected 300 OPs. We deemed 300 OPs reasonable for preliminary data analysis, given the nature of the pilot study. The data size of the previous studies ranged from 50 to over 600 when they conducted the qualitative analysis. The average number of the analyzed OPs from the previous studies we reviewed was approximately 300: 50 (Lyons & Brewer, 2022), 190 (Thomas et al., 2019), 200 (Graves et al., 2022), 259 (Kepner et al., 2022), 300 (Arshonsky et al., 2022), 305 (Nutley et al., 2021), 470 (Redondo-Sama et al., 2021), and 613 (Wu et al., 2022). The OPs were downloaded into Microsoft Excel and Word files for data annotation. Those files contained a user ID, timestamp, and text by each subreddit. We used either Excel or Word files depending on the information we tried to extract, which will be discussed shortly.

Data Analysis

We conducted quantitative content analysis (Erlingsson & Brysiewicz, 2017), with a word as our coding unit. We developed a codebook and annotated 300 OPs. We used descriptive statistics to examine the characteristics of IPV experiences during the pandemic among a subset of survivors on Reddit. We used SPSS software to calculate the counts and frequencies of such experiences by survivors and bystanders.

Codebook Development

The principal investigator (PI) (S.K.) and two graduate research assistants (GRAs) created the codebook in tandem using deductive codes adapted from

the Centers for Disease Control and Prevention's "Intimate Partner Violence Surveillance Uniform Definitions and Recommended Data Elements Version 2.0" (Breiding et al., 2015). Our initial codebook included definitions, examples, quotes, and codes for (a) self-report status of IPV (i.e., not IPV, self-reported IPV, and report from family/friend/neighbor); (b) time of IPV (i.e., past and current/ongoing); (c) typologies of IPV (i.e., physical violence, sexual violence, stalking, and psychological aggression); (d) tactics of psychological aggression (i.e., expressive aggression, coercive control, a threat of physical or sexual violence, exploitation of a survivor's vulnerability, and gaslighting); (e) help-seeking status (i.e., not help-seeking and help-seeking for survivor self); (f) needs. Table 1 provides the definitions and examples of the typologies of IPV and tactics of psychological aggression. The PI also used the first 100 OPs to add to and revise the original code scheme so that the codebook constantly changed as the data annotation proceeded. As a result, we separated narcissistic and financial abuse from a bigger category of psychological aggression because the IPV survivors on Reddit independently used these two words. We believed there must have been reasons for such a pattern of language use and decided to acknowledge that instead of categorizing narcissistic and financial abuse as psychological aggression.

We assigned a numerical code "0" to none IPV, "1" to self-reported IPV, and "2" to report from family/friend/neighbor. We assigned "0" to past IPV (when survivors had left their abusive relationships) and "1" to current/ongoing IPV. Similarly, we assigned "1" if a certain type or subtype of IPV was reported and "0" if not reported.

Data Annotation

The PI and two GRAs met and annotated 8 to 10 OPs together to have a common understanding of the data annotation process. In the first round, two GRAs independently annotated 100 OPs (25 OPs from each subreddit). Then, the PI and two GRAs convened to discuss coding discrepancies, which were ultimately settled by the PI. The same process was repeated in the second round, where two GRAs independently annotated additional 200 OPs (50 OPs from each subreddit). Again, the codes were finalized by the PI.

Results

Of 300 OPs, 36% ($n=108$) accounted for a self-report of IPV (i.e., a report by survivors themselves), while 3.3% ($n=10$) was a report by bystanders (i.e., survivors' family, friends, or neighbors who had directly or indirectly witnessed IPV).

Table 1. Definitions of Typologies or Tactics of IPV.

Type	Definition
Physical violence	When a person hurts or tries to hurt a partner by hitting, kicking, or using another type of physical force
Sexual violence	Forcing or attempting to force a partner to take part in a sex act, sexual touching, or a non-physical sexual event (e.g., sexting) when the partner does not or cannot consent
Stalking	A pattern of repeated, unwanted attention and contact by a partner that causes fear or concern for one's own safety or the safety of someone close to the victim
Psychological aggression	The use of verbal and non-verbal communication with the intent to harm another person mentally or emotionally and/or to exert control over another person
Expressive aggression	Name-calling, humiliating, degrading, or acting angry in a way that seems dangerous
Coercive control	Excessive monitoring of a person's whereabouts and communications; monitoring or interfering with electronic communication (e.g., emails, instant messages, social media) without permission; making threats to harm self; or making threats to harm a loved one or possession
Threat of physical or sexual violence	Use of words, gestures, or weapons to communicate the intent to cause death, disability, injury, physical or sexual harm. Threats also include the use of words, gestures, or weapons to communicate the intent to compel a person to engage in sex acts or sexual contact when the person is either unwilling or unable to consent
Exploitation of survivor's vulnerability	Taking advantage of a partner's perceived "weakness" or gap in defenses
Gaslighting	Presenting false information to the victim with the intent of making them doubt their own memory and perception; the act of undermining another person's reality by denying facts, the environment around them, or their feelings

(continued)

Table 1. (continued)

Type	Definition
Financial abuse	Controlling the victim’s ability to acquire, use, and maintain economic resources, diminishing the victim’s capacity to support themselves, and forcing dependence on partner
Narcissistic abuse	Harm of individuals often through manipulative psychological communication by someone considered to have narcissistic traits. However, its definition and meaning remains unclear and confusing. There may be a pattern of narcissistic abuse that includes specific behaviors throughout an intimate relationship (Howard, 2019): love bombing (e.g., flattering communication strategies), devaluation, discarding of the current partner (e.g., having an affair while denying this to the current partner, gaslighting, or narcissistic rage), and new relationship. The previous partner will experience distress and a deep sense of betrayal, feeling like a disposable object

Note. IPV = intimate partner violence.

Table 2 presents the timing of IPV and help-seeking status by the source of the report (survivor and bystander). Of 108 OPs written by survivors, about 40% regarded current/ongoing IPV, and about 14% contained help-seeking messages. Of 10 OPs written by bystanders, 90% were to report current/ongoing IPV they witnessed, and 80% contained help-seeking messages, such as how to help the survivor or how to intervene effectively with the situation.

Table 3 shows the distribution of the different IPV typologies by the source of the report. For both survivors and bystanders, a majority of the posts reflected psychological aggression, followed by physical, unspecified, and sexual violence.

Table 4 shows the distribution of the various tactics for psychological aggression by the source of the report. For survivors, 61.4% of the psychological aggression involved expressive aggression, followed by gaslighting (54.3%), coercive control (44.3%), and a threat of physical or sexual violence (21.4%). For bystanders, 83.4% of the reported psychological aggression reflected expressive aggression.

Table 5 shows survivors’ needs during the pandemic, retrieved from 24 OPs with help-seeking messages. The top five needs were asking about

Table 2. Characteristics of IPV Reported by Victims and Bystanders.^a

Characteristic	Victim <i>n</i> (%)	Bystander <i>n</i> (%)
Timing of IPV		
Past	65 (60.2)	1 (10.0)
Current or ongoing	43 (39.8)	9 (90.0)
Help-seeking		
Not help-seeking	71 (84.7)	2 (20.0)
Help-seeking for self	37 (13.7)	8 (80.0)
Total	108 (100.0)	10 (100.0)

Note. IPV = intimate partner violence.

^aBystanders indicate a third party who witnessed IPV of their family, friends, or neighbors and shared stories about the incidents on Reddit.

Table 3. Distribution of the IPV Typologies Reported by Victims (*n* = 108) and Bystanders^a (*n* = 10).

Typology	Victim <i>n</i> (%)	Bystander <i>n</i> (%)
Psychological aggression	70 (64.8)	6 (60.0)
Physical violence	51 (47.2)	4 (40.0)
Unspecified	25 (23.1)	3 (30.0)
Sexual violence	17 (15.6)	0 (0.0)
Financial abuse	13 (12.0)	1 (10.0)
Stalking	9 (8.3)	0 (0.0)
Narcissistic abuse	6 (5.5)	0 (0.0)

Note. Total *N* is greater than 108 and 10, respectively, because one post can include more than one IPV typologies. The denominator for the calculated percentages is 108 for victims and 10 for bystanders. IPV = intimate partner violence.

^aBystanders indicate a third party who witnessed IPV of their family, friends, or neighbors and shared stories about the incidents on Reddit.

similar experiences, wanting legal advice, asking if their feelings/reactions/thoughts/actions were valid, wanting to know if they were being abused, and asking for ways to grieve.

Table 6 exhibits excerpts from the subreddits, representing each code for the self-report status, timing, types of IPV, tactics of psychological aggression, help-seeking status, and needs.

Discussion

We collected big IPV-related data across the four subreddits during the COVID-19 pandemic using social media analytics (e.g., NLP and expert

Table 4. Distribution of the Psychological Aggression Tactics Reported by Victims and Bystanders.^a

Typology	Victim <i>n</i> (%)	Bystander <i>n</i> (%)
Expressive aggression	43 (61.4)	5 (83.4)
Gaslighting	38 (54.3)	0 (0.0)
Coercive control	31 (44.3)	2 (33.4)
Threat of physical or sexual violence	15 (21.4)	1 (16.7)
Unspecified	4 (5.7)	4 (66.7)
Exploitation of vulnerability	1 (1.4)	0 (0.0)

Note. Total *N* is greater than 70 and 6, respectively, because one post can include more than one tactics. The denominator for the calculated percentages is 70 for victims and 6 for bystanders. IPV=intimate partner violence.

^aBystanders indicate a third party who witnessed IPV of their family, friends, or neighbors and shared stories about the incidents on Reddit.

annotation) and analyzed the randomly sampled dataset. We confirmed the availability of useful IPV-related information on Reddit. We could identify the self-report status, timing, type and subtype of IPV, help-seeking status, and the survivors' needs. Such rich information regarding the experienced violence indicates that the anonymity allowed in Reddit may create a safe, supportive, and useful place for IPV survivors, increasing their likelihood of disclosure and seeking support (Whiting et al., 2022).

Social media is underutilized for selection, organization, and presentation of IPV-related data for IPV surveillance, prevention, and intervention. Only a few studies qualitatively analyzed the content of social media posts related to IPV or DV during the COVID-19 pandemic on Reddit (Lyons & Brewer, 2022; Whiting et al., 2022) or Twitter (Rai et al., 2022; Xue et al., 2020). For example, Lyons and Brewer (2022) identified four themes from 50 posts written by IPV survivors on Reddit: use of COVID-19 by the abuser, service disruption, preparation to leave, and factors increasing abuse or distress. Whiting et al. (2022) analyzed responses under the OPs on */r/domesticviolence* to examine the online dialogue between survivors and those who respond to their posts. They found that this online community was invested in three main categories—support, sharing experiences, and sharing information—with various subcategories.

For Twitter, Rai et al. (2022) extracted five themes from the IPV-related tweets via content analysis: (a) increase in IPV during the COVID-19 pandemic and its impact, (b) resources to help survivors and abusers of IPV during COVID-19, (c) general discussion about IPV, (d) experience of IPV, and (e) others. Xue et al. (2020) took an unsupervised machine learning approach,

Table 5. IPV Victims' Needs During the COVID-19 Pandemic ($n=24$).

Need	n^a (%)
Ask about similar experiences	9 (37.5)
Want legal advice	7 (29.2)
Ask if my feelings/reactions/thoughts/actions are valid	6 (25.0)
Want to know if I am being abused	3 (12.5)
Ask for ways to grieve	3 (12.5)
Try to make sense of what happened (applicable to newly experienced IPV)	2 (8.3)
Ask if violence can be justified in any circumstance	2 (8.3)
Want to recover/restore/heal myself	2 (8.3)
Ask if they should end the abusive relationship	2 (8.3)
Ask ways to cope	2 (8.3)
Want to know why I am experiencing certain symptoms	1 (4.2)
Want to know other options to receive help	1 (4.2)
Want to educate the perpetrator	1 (4.2)
Want financial advice	1 (4.2)
Want to have hope for better life and relationship	1 (4.2)
Want to help the perpetrator	1 (4.2)
Ask advice on what to do	1 (4.2)
Need advice to escape from the perpetrator	1 (4.2)
Ask how to end the abusive relationship but still be a family for their child(ren)	1 (4.2)

Note. IPV = intimate partner violence.

^aThe number of codes representing IPV victims' needs during the COVID-19 pandemic. The total number of codes can be greater than the total number of the analyzed Reddit posts because one post can contain more than one need. The denominator for the calculated percentages is 24.

through which they automatically analyzed millions of tweets without human annotation to extract themes around family violence at the early stage of the pandemic. They found nine salient themes, such as (a) increased vulnerability, (b) types of family violence, (c) forms of family violence, (d) risk factors linked to family violence, (e) victims of family violence, (f) social services for victims of family violence, (g) law enforcement responses, (h) social movements and awareness, and (i) DV-related news.

One important difference between Reddit and Twitter is that the latter does not necessarily reflect survivors' experiences and needs during the pandemic; it remains unknown whether the collected posts came from survivors, perpetrators, or community organizations (Xue et al., 2020). Social media posts containing data from varying entities (e.g., survivors or else) cannot provide

Table 6. Example of Coded Segment.

Code	Segment
Self-report status	
Self-report by survivor	My abusive ex, my husband, my boyfriend
Report from bystander	My friend, my sister, my brother
Time of IPV	
Past	<i>It's been 16 years since I left my ex-husband.</i>
Current or ongoing	<i>I'm in an abusive relationship.</i>
Type and subtype of IPV	
Physical violence	<i>He grabbed me by the back of my neck and made me walk into the bedroom then threw me on the bed.</i>
Sexual violence	<i>He coerced me into sex using emotional and physical manipulation tactics...instead of doing the things I asked him to do to help me feel wanted or warm to the idea. Sometimes, I would cry during or after because it felt abusive but I knew that if I didn't comply, he would make my life hell.</i>
Stalking	<i>My ex-husband came into my driveway twice. He sent his parents to drive by my house while they live half an hour away. Had his mom record me at court. He constantly sent the police to well check the kids.</i>
Psychological aggression	<i>About a month ago I left my verbally abusive husband.</i>
Expressive aggression	<i>He gets up to go to work but begins cussing me out as I slept. Telling me again he deserves to be able to drink, not work, calling me names.</i>
Coercive control	<i>He made me exercise twice a day 6 days a week and kept track of everything I did exercise-wise and weighed me constantly.</i>
Threat of physical or sexual violence	<i>There's times when he says "i'm going to slap you" but never did.</i>
Exploitation of vulnerability	<i>Whenever we have a disagreement, he loves to say that being married was his compromise and that he "protected" my reputation so the least I could do is give him this one thing.</i>
Gaslighting	<i>I found out he had been lying to me all along ... Everytime I suspected something was wrong with what he was telling me, he would turn it around and accuse me that I was wrong for thinking like that and I was the one who is messed up in the head.</i>

(continued)

Table 6. (continued)

Code	Segment
Financial abuse	<i>Everything had been in my name because my estranged husband always said that he had bad credit. Then, of course, he'd let payments lapse. Bills weren't to be paid, not by him. He'd blow our money on his cigarettes, toys he wanted, a new motorbike. Stuff we just couldn't afford.</i>
Narcissistic abuse	<i>I found out he had been lying to me all along. I found out he took the other girl to Disney, took her to meet his family, brought her on a trip with his family and friends, there are many other lies he told me I don't want to get into anymore. [. . .] Everytime I suspected something was wrong with what he was telling me, he would turn it around and accuse me that I was wrong for thinking like that and I was the one who is messed up in the head. He said I should be lucky for just having him in my life since he was the only one who truly cares about me. I confronted him after I saw the evidence on his phone and he became physically violent towards me. [. . .] He made me believe he was only romantically involved with me, but he was doing romantic stuff with other girls besides sex. He made me believe with my low self-esteem I should be lucky even just to have him around in my life.</i>
Not specified abuse Help-seeking status Not help-seeking	<i>My partner does me serious harm.</i> "describing my situation" "share" "vent"
Help-seeking for survivor self	<i>"I really needed to get this out somewhere"</i> <i>"How do I get out"</i> <i>"need some advice," "looking for advice"</i> <i>"looking for guidance"</i> <i>"I'm looking for any resources"</i> <i>"I am looking forward to hearing more perspectives"</i> <i>"share some insights with me"</i> <i>"share any of your similar experiences with me"</i> <i>"send some encouragement my way"</i> <i>"I don't know who to talk to"</i> <i>"Please help"</i>

(continued)

Table 6. (continued)

Code	Segment
Help-seeking for other survivor	<p>“How do I offer the right support?” “What are the right words to use?” “What else can I offer her?” “How do I communicate that?”</p>
Survivor’s need	
Ask about similar experiences	<p>“If anyone has any stories they would like to share I would really appreciate it.”</p>
Want legal advice	<p>“With coronavirus shutting everything down would I be able to file some type of motion to get him removed from our home?”</p>
Ask if my feelings/reactions/ thoughts/actions are valid	<p>“I just want to know if there’s something wrong with me” “What if calling was the worst mistake of my life?”</p>
Want to know if I am being abused	<p>“Is this a hallmark of abusers?” “Is this normal for an abusive person?”</p>
Ask for ways to grieve	<p>“I don’t know how to handle the grief.” “How do I be normal when all I feel is empty or rage that I have nothing?”</p>
Try to make sense of what happened (applicable to newly experienced IPV)	<p>“Does he think if he keeps telling me I’m not doing enough, I’ll keep doing more to try to ‘prove’ to him that I am doing enough?”</p>
Ask if violence can be justified in any circumstance	<p>“Do I deserve to be hit for what I did?”</p>
Want to recover/restore/ heal myself	<p>“I don’t know how to be me again.”</p>
Ask if they should end the abusive relationship	<p>“GF is strong arming me into buying an apartment and having a kid with her way before I’m ready. Should I just break up with her?”</p>
Ask ways to cope	<p>“all I’m asking is if there’s anything someone recommends I can do to be happy, or an activity to help me forget.” “I just don’t know what else I can do to help cope.”</p>
Want to know why I am experiencing certain symptoms	<p>“Do any of you [...] struggle to organize the events in your mind in the order that they took place? Why would this be happening?”</p>
Want to know other options to receive help	<p>“I don’t know what else to do.”</p>
Want to educate the perpetrator	<p>“How do I make him understand that what he does isn’t correct either?”</p>

(continued)

Table 6. (continued)

Code	Segment
Want financial advice	<i>"My disabled wife attacked me with knives due to mental illness. For now I have full legal and physical custody. But I have to sort out divorce sometime soon too. [. . .] How to not lose the shirt off my back as the spouse with all the money (and her disabled, female)."</i>
Want to have hope for better life and relationship	<i>"I need something to give me hope."</i>
Want to help the perpetrator	<i>"I don't know how to help him."</i>
Ask advice on what to do	<i>"My girlfriend found out, cheated on me months later and is now threatening me with the information unless I take her back. What do I do?"</i>
Need advice to escape from the perpetrator	<i>"I am working to get out but could use any advice."</i>
Ask how to end the abusive relationship but still be a family for their child(ren)	<i>"How to get divorced and separated... but still have her be able to be a mom."</i>

Note. IPV = intimate partner violence.

more granular and targeted information (e.g., types of experienced IPV, survivors' help-seeking status, and needs), which can be directly translated into prevention or intervention efforts to assist survivors in need. In this regard, IPV-related subreddits will be greatly beneficial to learning about survivors' lived experiences and needs and offering tailored support in a timely manner. Secondly, during the pandemic, ~11% of the IPV-related tweets contained first-hand experiences of IPV (Al-Garadi et al., 2022; Rai et al., 2022), whereas one-third of the OPs across the four IPV-related subreddits came from survivors in our study. This figure is also higher than that from surveys. Jetelina et al. (2021) documented that 18% of the survey respondents in the United States (recruited from social media) were IPV survivors, over 86% of whom experienced psychological aggression, 16% sexual violence, and 8% physical violence. Coupled with the anonymity of users, a gatekeeper for each subreddit may have contributed to the higher rate of self-reported IPV in our study. The gatekeepers can exercise quality control by discouraging posts irrelevant to the specific topics to which the subreddits are dedicated.

When it comes to survivors' needs during the pandemic, studies reported survivors' challenges to meeting their basic needs, such as housing (i.e., safe and affordable shelter), accessing technology, transportation, employment,

and childcare (Ragavan et al., 2022; Tocalino et al., 2022). Importantly, Tocalino et al. (2022) emphasized survivors' need for peer support. The stakeholders interviewed reported survivors' desire to connect with someone "who truly understands their experience" and "the various systems and structures a survivor must navigate from the survivor perspective." Our study findings echo the same needs of survivors for emotional and informational support, such as wanting to hear about similar experiences from peers, asking for legal advice, needing the validation of their feelings/reactions/thoughts/actions, acknowledging the experience of IPV, and asking for ways to grieve, among others. These results demonstrate IPV-related subreddits as a putative support group, where survivors anonymously disclose vulnerable stories of IPV, ask questions, and seek support (Whiting et al., 2022).

Moreover, IPV-related subreddits could be a safer resource for survivors than other formal support options (e.g., hotlines). There are concerns about family violence support using videoconference or telemedicine where the abusers can be present. Abusers can coercively control survivors' use of mobile phones to access hotline support (Xue et al., 2020). We also acknowledge that Reddit is not free of potential harm to survivors, particularly when survivors experience digital abuse or stalking, as well as abusers can access IPV-related subreddits and read the posted content. Nevertheless, we believe that the exposure to such risk could be substantially mitigated when survivors use Reddit. As stated earlier, survivors can hide their real identities and digital footprints using throwaway accounts and multiple aliases when they attempt to receive information and support from peers on Reddit. In addition, discussions on subreddits are monitored by moderators, who can delete irrelevant content without the users' permission. In light of that, Reddit could be a safer alternative to access information and support.

Lastly, we noted that such data as gender, age, health status (e.g., depression and posttraumatic stress disorder), behaviors (e.g., substance use), or suicidal ideation among survivors and their perpetrators appeared in OPs, albeit less frequent than data directly related to violence. Although we did not systematically extract and analyze those data in this study, sociodemographic characteristics or risk/protective factors of IPV among survivors and their perpetrators are invaluable information to prevent and respond to IPV. Future studies are warranted to collect and analyze such data to identify risk/protective factors of IPV that are not captured via interviews, surveys, or medical records, as well as investigate patterns of victimization, help-seeking, and needs unique to subgroups of IPV survivors.

Despite the strengths of the study, we acknowledge some limitations. First, our data collected from Reddit reflect the experiences of survivors who had access to the Internet and computer or mobile phone. Thus, survivors

with socioeconomic disadvantages who could not afford Internet access and devices were not represented in our data, although they might be at risk of severe violence due to their conditions (Jetelina et al., 2021). Second, our findings are not generalizable to all survivors but only to survivors who use Reddit, specifically the four IPV-related subreddits. Despite its rapid increase in popularity (4.3 billion monthly users), 18% of U.S. adults are reported to have ever used Reddit (Pew Research Center, 2021). Also, we did not include non-English OPs and may have missed other subreddits related to IPV. Third, we could not stratify the analysis by survivors' sociodemographic characteristics because such information was unavailable in every OP. Unlike Twitter, where users' demographic meta-data (e.g., gender, race, and geolocation) are often available, Reddit does not have those types of data unless survivors voluntarily disclose them. Fourth, we did not analyze responses under the OPs in this study. Future studies will analyze data in responses to the OPs to identify types of information or support offered to survivors. OPs and responses together will help grasp the characteristics of interactions among survivors in IPV-related subreddits and detect unmet needs.

Previous studies adopting Information and Communication Technology have mainly focused on identifying IPV survivors or increasing the IPV disclosure rate, while fewer have aimed at IPV prevention, treatment, support, and empowerment (El Morr & Loyal, 2020). Even during the COVID-19 pandemic, the existing resources failed to promptly pivot from in-person to online platforms to support IPV survivors, revealing significant limitations in the current support systems. Additionally, their services remained reactive, and survivors bore the burden of seeking help even when they faced more barriers than ever with their abusers at home to reach out. Our study using Reddit data allows us to reimagine the role of social media in supporting survivors in need. We recommend researchers, practitioners, and organizations take advantage of IPV-related subreddits (or other social media) to proactively reach out to survivors to prevent IPV, and treat, support, and empower survivors. Future studies may develop non-contact infrastructure integrating mHealth to provide information and support to survivors on Reddit. Practitioners and organizations working with survivors may need to redefine their clients, including survivors in online communities beyond physical communities. They can directly engage with survivors on Reddit by posting or responding to OPs with useful resources and advice. Practitioners can introduce survivors to IPV-related subreddits as social support groups. Organizations can adopt existing programs or design new programs to tailor them to survivors on social media. Although peers can share information and support each other, some of the survivors' needs can be met with professional help, such as legal consultation, reiterating social media can be a more

effective medium when supplemented by conventional resources. Using Reddit in research and practice is worth exploring, considering its potential benefit to survivors.

Conclusion

This study analyzed posts from four subreddits related to IPV to understand IPV survivors' violence experiences and needs during the COVID-19 pandemic. This study found that survivors were willing to disclose their sensitive information with details to peers on Reddit, which guarantees user anonymity. Generally, psychological aggression, such as expressive aggression and gaslighting, was pervasive in this survivor community. Additionally, there were relatively high demands for emotional and information support among survivors, which may represent why survivors turn to social media in the first place.

The use of social media is growing and impactful, yet still relatively understudied (Whiting et al., 2022). Social media data about IPV and other digital footprints about survivors' behaviors could be leveraged for *Infodemiology* and *infoveillance* (Eysenbach, 2009) to inform IPV preventive and response strategies and health policy (Kim et al., 2021; Merchant & Lurie, 2020). Also, it could be employed to raise public awareness, share best practices, and provide support (Xue et al., 2020).

Despite its many positive qualities, social media may bring additional scrutiny or conflict to its users (Whiting et al., 2022). It is pivotal to consider potential ethical issues around using social media to study such a sensitive topic as IPV. For instance, researchers should be mindful of the intentions of survivors posting their stories on social media and weigh the harms and benefits of the study's impact on survivors' health and safety. Nevertheless, harnessing social media could create novel and safe ways for survivors to seek support without alerting their abusers (United Nations, 2020), which is a promising field to explore.


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