Technology-Based Prevention of Intimate Partner Violence: A Scoping Review

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Abstract

Intimate partner violence (IPV) is a pervasive global health issue. While HCI research often examines how technology facilitates violence (e.g., surveillance, harassment), far less is known about its role in prevention. We conducted a PRISMA-ScR scoping review of 226 articles from the ACM Digital Library, IEEE Xplore, PubMed, and USENIX to survey technology-based IPV prevention. We found that most work focuses on reactive, secondary prevention, with minimal attention to upstream or culturally specific approaches. We synthesize this landscape and outline five recommendations for HCI: (1) establish clear definitions of IPV; (2) increased attention to primary preventions that addresses root causes of IPV; (3) engage stakeholders and end-users; (4) conduct real-world testing and implementation; and (5) tailor interventions to regional and demographic contexts. Without addressing these gaps, HCI risks producing unsustainable or even harmful technologies. Our review calls for a reorientation toward proactive, community-centred, and culturally grounded design of IPV prevention technologies.

CCS Concepts

• **General and reference** → *Surveys and overviews*; • **Human-centered computing** → **Human computer interaction (HCI)**; **Collaborative and social computing**; • **Social and professional topics**;

Keywords

intimate partner violence, prevention, abuse, gender based violence, domestic violence, home violence, femicide, violence against women, technology, human-computer interaction, scoping review

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1 Introduction

Intimate partner violence (IPV) is a critical public and global health issue with profound impacts on individuals, families, communities, and societies. IPV occurs within current and former intimate relationships—including married, separated, common-law, and dating partners—and encompasses physical, sexual, and psychological harms, as well as harassment and stalking [24, 52, 97]. It is widespread: one in three women will experience physical and/or sexual IPV during their lifetime [97], with many more subjected to less visible forms such as psychological abuse [52]. Digital technologies increasingly mediate these relationships, serving both as spaces for abuse and as potential means of prevention [56, 83].

Consequently, there has been growing interest within the human-computer interaction (HCI) community in designing, developing, and deploying technologies that address IPV. HCI's distinctive contribution to this space is methodological as much as technical: it brings participatory and community-based design, sensitivity to lived experience, attention to sociotechnical context, and traditions of longitudinal and field-deployed evaluation that other technical or clinical approaches do not provide on their own [13, 32, 55, 115]. These approaches are particularly important for IPV prevention, where interventions must be trauma-informed, culturally grounded, and responsive to victims' contexts. For example, Freed et al. [56] introduced *clinical computer security consultations*, where trained technologists meet directly with IPV victims[1] to examine smartphones and other devices, uncover vulnerabilities, and support safety planning. Similarly, Bellini et al. [17] collaborated with domestic violence service providers to design an online service directory that better supported their work. These cases illustrate the kinds of contributions HCI is well positioned to make: not only safer interfaces and infrastructures and trauma-informed user experiences, but also the design *processes* through which prevention

[1]We recognize the varied terminologies used to refer to individuals who have experienced IPV, such as IPV survivors or IPV victims. In this paper, we opt to use the term "IPV victims", inclusive of survivors, as we will also specifically address incidents of IPV femicide, wherein individuals are solely victims of such crimes.

technologies are conceived, co-developed with affected communities, and integrated into the everyday contexts where IPV occurs. Yet despite this promise, there is no shared understanding of the types of interventions required or even consistent definitions of IPV within the HCI literature.

Previous reviews of technology-based IPV interventions have come largely from health and clinical disciplines. For example, Anderson et al. [10] systematically reviewed web and mobile health (mHealth) tools for IPV prevention, focusing on clinical outcomes such as symptom reduction and support for safety planning. Similarly, Emezue et al. [46] conducted a systematic review and meta-analysis of digital IPV interventions, focusing on therapeutic effectiveness and service delivery models. While these reviews underscore the potential of digital tools, they provide limited guidance for HCI: they do not analyse how design methods, participatory processes, or sociotechnical contexts shape the technologies that have been built, nor do they surface the research-practice gaps—around community engagement, field deployment, and reporting of context—that determine whether HCI's distinctive methodological strengths are actually being brought to bear.

To address this gap and reduce barriers for HCI researchers engaging with IPV research [121], we conducted a scoping review examining how technologies have been designed and studied for IPV prevention. Unlike prior health-focused systematic reviews [10, 46], which emphasised short-term clinical outcomes, our review applies a public health prevention framework—distinguishing primary, secondary, and tertiary prevention—and reads the literature through an HCI lens that attends to design processes, participatory engagement, deployment context, and evaluation practice alongside the technologies themselves. Using the PRISMA-ScR process [128], we screened 1,777 papers from the ACM Digital Library, IEEE Xplore, PubMed, and USENIX, identifying a final corpus of 226 that explicitly addressed IPV prevention through technology. From this corpus, we synthesize the concepts, practices, and theoretical orientations that have shaped prior work and highlight opportunities where HCI can make distinct contributions.

In presenting our findings, we organise the literature through a public health prevention lens. This framing allows us to identify both gaps in current approaches and opportunities for HCI scholarship. Our discussion highlights five priorities for advancing the field: (1) establishing clear definitions of IPV and distinguishing it from adjacent domains such as gender-based violence, violence against women, domestic violence, and femicide; (2) expanding attention to primary prevention strategies, which remain underexplored compared to secondary and tertiary interventions; (3) deepening engagement with stakeholders and end-users through community partnerships and participatory design; (4) moving beyond proof-of-concept studies to real-world implementation and field-based evaluation; and (5) accounting for geographic and cultural contexts that shape the design and efficacy of IPV prevention technologies. Together, these priorities outline a research agenda for HCI that extends beyond description to actionable contributions in design *process*, evaluation, and deployment.

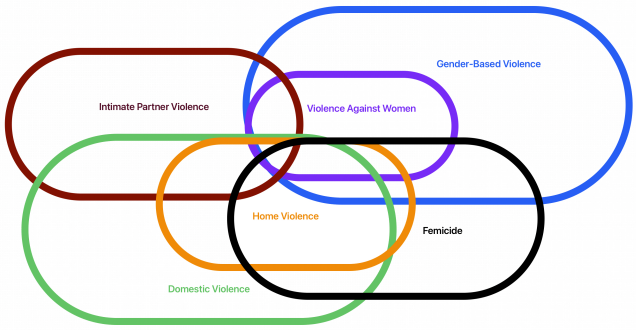

Figure 1: Venn diagram showing the overlap between intimate partner violence (IPV), gender-based violence (GBV), violence against women (VAW), domestic violence (DV), home violence (HV), and femicide.

1.1 Authors' Positionality Statement

Our team approaches this work through diverse professional and disciplinary backgrounds. One author brings over a decade of frontline experience as a social worker in IPV and gender-based violence contexts, which provides deep practical knowledge but may also shape interpretations through practitioner lenses. Others contribute perspectives from feminist HCI, user experience research, and public health, offering critical frameworks for inclusivity, equity, and methodological rigour, while also entering IPV research as relative outsiders. We recognise that our positions as researchers in well-resourced academic institutions confer privileges that may influence how we engage with sensitive topics and interpret survivor voices. To mitigate these dynamics, we engaged in iterative reflexivity through team discussions, cross-disciplinary critique, and attention to trauma-informed design principles. Our reflections are informed by feminist theory [13], intersectionality [34], and trauma-informed computing [32, 115], which help us situate our identities, biases, and responsibilities within this research.

2 Related Work

The World Health Organization (WHO) defines IPV as "behavior by an intimate partner or ex-partner that causes physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse, and controlling behaviors" [97]. While this provides a clear foundation, the broader literature often uses related terms such as gender-based violence (GBV), violence against women (VAW), domestic violence (DV), home violence (HV), and femicide, sometimes interchangeably (Figure 1). These overlaps create challenges for synthesis and comparison: GBV encompasses violence based on gender identity or expression; VAW is a subset of GBV focused specifically on women; DV refers to abuse within cohabiting domestic arrangements; HV denotes violence within a household unit and may include extended family members; and femicide refers to the killing of women and girls because of their gender. IPV, by contrast, specifically denotes violence occurring within intimate relationships.

For HCI researchers, these distinctions are not always applied consistently. This is due, in part, to the significant overlap of the

definitions themselves. For instance, Woodlock [138] frames her analysis in terms of "domestic violence" yet many of the technology-facilitated abuse cases described fall squarely within IPV. Matthews et al. [83] describe the experiences of "survivors of intimate partner abuse", however their findings also speak to broader forms of GBV. Likewise, Fraser et al. [54] examine stalking under the label of DV, though stalking is both a distinct phenomenon outside of IPV, as well as a tactic frequently used within IPV. These examples show that the choice of terminology often reflects disciplinary traditions as much as the populations studied. For HCI, the use of multiple overlapping terms can make it difficult to build cumulative knowledge, define the scope of interventions, and design technologies that address IPV in practice.

In this review, we adopt the WHO's definition of IPV as our working definition while situating it in relation to adjacent terms. This lens allows us to systematically code and synthesize the literature, and to highlight where definitional ambiguity has constrained the field's ability to build cumulative knowledge. More broadly, we see clarifying and situating these overlapping terms as an important step toward coalescing the HCI community around a shared goal: producing research and technologies that can more effectively address IPV.

2.1 IPV is Not Inevitable, but Preventable

IPV has a significant gender bias in both victims and perpetrators. Women experience disproportionately high rates of violent victimization, accounting for roughly 80% of reported victims [35], while men are responsible for close to 90% of accused perpetrators in homicide cases [26]. Though IPV affects all genders, the disproportionate rates of violence experienced by women and girls from men and boys are rooted in structural gender inequality and misperceptions of social norms that make such violence permissible [27, 97, 139].

Evidence shows that IPV does not stem from a single cause, but from the interplay of risks across social, individual, and relationship levels [72, 92]. At the broadest level, inequitable gender norms and cultural expectations that position women as subordinate create environments where violence is tolerated [95, 96]. These beliefs are reinforced in communities affected by poverty, unemployment, or high levels of everyday violence, where aggression is normalised as a way of resolving conflict [139]. Within these contexts, individual vulnerabilities—such as poor mental health, a history of partner violence, financial stress, or substance use—can further increase the likelihood of perpetration [72, 92]. Finally, the dynamics of the intimate relationship itself, including jealousy, possessiveness, or controlling behaviours, often act as the immediate triggers for violence [92]. Taken together, these layers of influence show that IPV is not the outcome of isolated pathology, but of intersecting social, economic, and relational conditions—conditions that can be changed.

Global public health authorities are unequivocal in their position: IPV is not inevitable—it is preventable [92, 97]. Since the social, economic, and relational factors that drive IPV are identifiable, they can also be changed. International public health bodies emphasize prevention strategies such as challenging harmful gender norms, strengthening economic and social supports, and reducing risk factors before violence occurs [92, 97]. Framing IPV as preventable is crucial for HCI: it shifts the focus from designing technologies that only respond to crises toward those that also help transform the environments in which violence takes root.

Importantly, when public health research describes IPV as preventable, it does not imply that violence can always be avoided in any given relationship, nor that responsibility for prevention rests with victims or individuals alone. Rather, prevention refers to population-level strategies that reduce the incidence, severity, and recurrence of violence over time by altering the structural and social conditions under which IPV becomes more likely [92, 97]. As with other complex social and health phenomena, prevention operates probabilistically: interventions can lower risk and shift distributions at the population level, even though no single intervention can guarantee the prevention of every individual act of violence.

2.2 From Fragmented Tools to a Prevention Framework

Technology has been taken up across multiple domains to address IPV and related violence, but in fragmented and inconsistent ways. Health-focused reviews highlight the promise of web and mHealth tools, with interventions such as support groups, cognitive behavioural therapy, and digital education showing short-term benefits for survivors [10, 46]. Safety-oriented research explores technical detection, from IoT sensors that monitor unsafe situations [48] to AI systems designed to flag harassment and stalking online [112]. Broader lenses include reproductive health and information systems in low- and middle-income countries [70, 101], while social approaches emphasize gender-transformative strategies and positive masculinity [29, 100]. Each of these strands demonstrates technical creativity, yet together they reveal a field that is siloed by domain and limited in scope.

Work in security and privacy venues such as USENIX and PETS expands this picture further. Researchers there have examined spyware, covert surveillance, intimate image abuse, and emerging forms of online harassment. Some apply machine learning to detect harmful content at scale [71], while others critique technosolutionist approaches and emphasize survivor-centred design [18]. Studies of harassment in specific contexts—from Bangladeshi social media [127] to embodied harassment in social virtual reality [57], or toxic workplace cultures [16]—underscore the breadth of technology-facilitated abuse. Yet this body of work has rarely been integrated with IPV prevention strategies in HCI, leaving an important strand of research disconnected from broader real-world prevention agendas.

Taken together, these domains highlight the energy and diversity of work on technology and violence, but they also point to recurring limitations. Most interventions focus on women as victims, emphasize secondary or tertiary outcomes, and treat violence as a problem to be detected or managed after it occurs. This reactive orientation stands in contrast to guidance from the WHO and CDC, which emphasize that IPV is preventable and call for strategies that shift harmful gender norms, strengthen social and economic supports, and reduce risks before violence begins [92, 97]. Definitions also vary across IPV, DV, VAW, and GBV, fragmenting the field and hindering cumulative progress. What is missing is a synthesis

that brings these strands together, situates them in a public health prevention framework, and identifies how HCI can contribute to proactive, prevention-oriented interventions through its distinctive methodological commitments to participatory design, community engagement, and field-deployed evaluation.

To help understand the different approaches identified within the review, we grouped work using public health definitions [31, 75] of primary, secondary, or tertiary prevention level:

(1) The goal of a **Primary Prevention** is to intervene before the health or social problem occurs by removing the cause or preventing the development of associated risk factors. In the case of IPV, a primary prevention would be implemented before the violence occurs, such as shifting social norms and attitudes around IPV.
(2) A **Secondary Prevention** aims to detect the health or social problem early on and to prevent its reoccurrence or escalation. For IPV situations, secondary preventions may include screening protocols to identify and address risk factors for IPV or programs that detect incidences of violence.
(3) The purpose of a **Tertiary Prevention** is to prevent death and/or disabilities related to the health or social problem *after* it has occurred. In IPV incidences, many of these interventions are designed to minimise the impact of the violent event(s) and can include interventions directed towards IPV perpetrators and survivors.

By articulating how interventions map onto these three prevention levels, this framework helps clarify how different research traditions contribute to prevention, early intervention, and post-violence support, and where opportunities remain for future work.

3 Method

We conducted a scoping review to map how technology has been used for IPV prevention and to identify opportunities specific to HCI. Our review was guided by a public health prevention framework—primary, secondary, and tertiary prevention—which we apply to computing and interaction design. This perspective allows us to synthesize diverse strands of research, highlight where HCI has engaged, and surface gaps.

To support transparency and rigour, we followed the PRISMA-ScR framework [128]. This structured approach supports systematic identification, screening, and analysis of relevant literature. In the following subsections, we describe the databases searched, the criteria for inclusion and exclusion, and our coding process for categorising studies by technology domain and prevention level.

3.1 Eligibility Criteria

Inclusion Criteria:

(1) The article is related to intimate partner violence; AND
(2) The article identifies technology to prevent intimate partner violence; AND
(3) The article is published in English; AND
(4) The article is an original full paper/research publication (e.g., not review papers).

Exclusion Criteria:

(1) The article is not related to intimate partner violence (i.e., parent-child violence); OR
(2) The article only mentions the *need* to prevent intimate partner violence (i.e., does not provide specific IPV prevention technology); OR
(3) The article is not available (e.g., under embargo); OR
(4) The article is not a full paper publication (e.g., poster, extended abstract).

3.2 Information Sources

This scoping review is intentionally cross-disciplinary. Rather than limiting the corpus to venues traditionally labeled as "HCI," we examined technology-based IPV prevention research across the ACM Digital Library (ACM DL), the Institute of Electrical and Electronics Engineers' digital library (IEEE Xplore), PubMed, and selected security and privacy venues to capture the broader ecosystem of technical interventions with which HCI research interacts. This approach reflects the reality that IPV prevention technologies are developed, evaluated, and deployed across multiple domains, including health informatics, security, and systems research, and that HCI both contributes to and learns from this wider landscape.

We searched for studies published on or before May 31, 2024 to cover a relevant and appropriate time span. We conducted our last search on June 1, 2024. We selected the three databases to strategically cover a variety of research communities and approaches. The ACM DL is the premier database for HCI research, and includes relevant research from venues like ACM CHI and CSCW. IEEE Xplore includes HCI research as well as related work in security and privacy, such as the IEEE Symposium on Security and Privacy and the European Symposium on Security and Privacy. Finally, we searched PubMed to ensure that we identified publications related to IPV as a health issue [124], and to be inclusive of Health Informatics venues that bridge technology and health research.

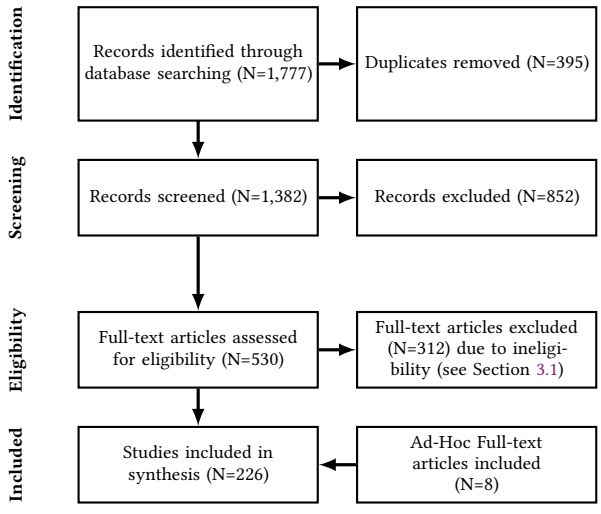

Figure 2: PRISMA flow diagram showing the number of papers included at each stage of our scoping review.

Unlike the ACM Digital Library or IEEE Xplore, USENIX does not provide a centralised database that supports systematic keyword querying across venues. To account for this, we conducted a targeted manual review of proceedings from the USENIX Security Symposium, complemented by citation chaining from highly cited IPV- and technology-abuse-related papers. This approach aligns with established scoping review practices when relevant venues are not covered by standard bibliographic databases. We manually cross-checked our corpus against major security and privacy venues, including USENIX Security, PETS, and SOUPS, and identified eight papers that met our inclusion criteria (e.g., [15, 40, 120]).

3.3 Search Strategy and Query

We followed the PRISMA-ScR approach to conduct the scoping review. We performed a test search on the ACM DL where "prevent" and "tech" (and truncated versions of "prevent" and "tech") and "intimate partner violence" or "IPV" or "domestic violence" or "DV" or "domestic abuse" or "intimate partner abuse" appeared in the abstract.

Listing 1: Initial Search String

```
ABSTRACT: ((``intimate partner violence'' OR ``ipv
    ''OR ``domestic violence'' OR ``dv'' OR ``
    domestic abuse'' OR ``intimate partner abuse
    '') AND (prevent*) AND (tech*))
```

This test search yielded **46 results**. Using these initial results to refine the search strategy, we decided to include an additional **6** keywords. We made this expansion to ensure gender inclusivity and reflect the varied terminology used across disciplines and policy environments. Specifically, we added terms such as "gender-based violence", "family violence", "violence against women", "harassment" and "sexual consent". Our intention was not to restrict the review to women-only experiences, but rather to capture the breadth of language employed in health, security, legal, and computing research. For instance, "gender-based violence" and "violence against women" are dominant terms in global health and policy literature, while "family violence" and "harassment" appear more often in legal or sociotechnical contexts. By broadening the query in this way, we sought to maximize coverage across genders and contexts. We retained the WHO definition of IPV as a working definition for *coding*—used to organize and synthesize the corpus—rather than as an additional exclusion filter at the search stage; papers were included whenever their substantive content addressed IPV dynamics, even when authors used adjacent terminology such as GBV, DV, or family violence.

We then applied the updated search query to the ACM DL, IEEE Xplore and Pubmed databases:

Listing 2: Final Search String

```
ABSTRACT: ((``intimate partner violence'' OR ``ipv
    '' OR ``domestic violence'' OR ``dv'' OR ``
    domestic abuse'' OR ``intimate partner abuse''
     OR ``violence against women'' OR ``gender
    based violence'' OR ``gender-based violence''
    OR ``family violence'' OR ``harassment'' OR ``
    sexual consent'') AND (prevent*) AND (tech*))
```

This yielded **1,777 results**, which became the initial sources of evidence for further study evaluation.

3.4 Study Selection

We collected all records in the Covidence[2] software and marked each source of evidence with "Yes", "Maybe", or "No" as it related to our eligibility criteria. In the first iteration, the first and second authors read the titles and abstracts of the initial sources of evidence to select studies that were likely to contribute to the knowledge of preventative IPV technology. Through this initial screening process, some results were removed as duplicates. A total of 852 were removed after initial title and abstract screening due to the articles not relating to IPV or being review papers. Conflicts at this stage were resolved through discussion between the first and second authors, with the third and fourth authors consulted when consensus could not be reached. Next, the first and second authors read the full-text articles to further assess for eligibility. We excluded a total of 312 full-text articles due to not meeting eligibility criteria (see Section 3.1). Additionally, the first and second authors manually reviewed additional security and privacy forums (e.g., USENIX and PETS) and included a total of 8 eligible papers from USENIX in the corpus. This left a final corpus of 226 articles included in our scoping review. As above, conflicts at the full-text stage were resolved through discussion among the first and second authors, with escalation to the third and fourth authors when needed.

3.5 Data Analysis Approach

The first and second authors were primarily responsible for data analysis. They extracted and coded each identified paper with the following variables: prevention level, year of publication, the database in which it was published, location of the study, the study design/methods, the technology used or designed, funding source(s), target population, target behaviours/indicators, any collaborations with the community or end-users, whether the study was evaluated, and if there was any post-study implementation of the IPV prevention technology. We used a hybrid coding approach: the prevention-level dimension was deductive, applying the established public health primary/secondary/tertiary framework [31, 75], while the remaining variables were generated inductively to remain responsive to the diversity of approaches encountered in the review.

Our inductive coding process iteratively generated codes during full-text screening to capture the elements most relevant to our research questions: namely, how technologies for IPV prevention are conceptualized, implemented, and evaluated. This process allowed us to identify variables that highlighted not only the technical features of interventions (e.g., technology type, target population) but also their sociotechnical context (e.g., collaboration with communities, deployment setting, funding, and evaluation practice).

Each article was coded by the first and second authors independently. We did not compute a formal inter-rater reliability statistic; instead, following established practice for scoping reviews where coding schemes are inductively developed and refined during analysis, we used a consensus-based validation process. After independent coding, the first and second authors compared codes article-by-article, and discrepancies were resolved through discussion.

[2] https://www.covidence.org/

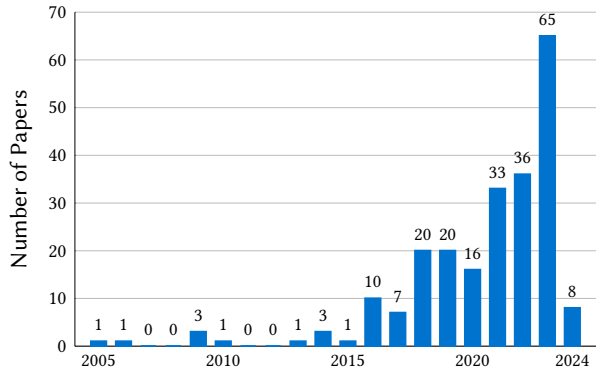

Figure 3: Publications in the ACM Digital Library, IEEE Xplore Database, PubMed and USENIX related to intimate partner violence by year.

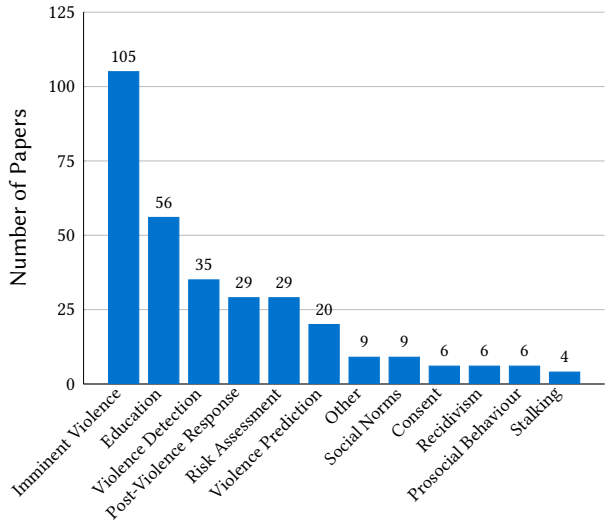

Figure 4: A summary of behaviours and/or indicators targeted by interventions identified in our scoping review.

When consensus between the first and second authors could not be reached, the third and fourth authors were brought into the discussion, and any remaining discrepancies were resolved through group consensus.

4 Results

Our search identified 226 publications spanning 2005 to 2024, with most drawn from IEEE Xplore (75%), and smaller shares from PubMed (17%), the ACM Digital Library (4%), and USENIX (4%). Publication activity in this area has grown steadily over the past two decades, though with notable fluctuations (Figure 3). Output dipped in 2020, likely reflecting disruptions to research during the COVID-19 pandemic [36], before nearly doubling in 2021. This sharp rebound coincided with mounting evidence that the pandemic intensified IPV through confined living conditions, health pressures, and economic strain—trends described by global agencies as the "Shadow Pandemic" [37, 97, 137]. Several of the papers explicitly referenced this increase, and two cited it as a direct motivation for their work [88, 109].

4.1 Prevention Levels and Targeted Indicators

Most of the research we reviewed focused on **secondary prevention**, which accounted for 63% of papers. These interventions targeted imminent violence through self-defence artifacts [e.g., 33, 131] or detection systems designed to identify violence as it occurred [e.g., 81, 106]. Typical examples included safety vests with pressure sensors [131] or panic-button apps that alerted trusted contacts with GPS location data [e.g., 47, 50]. This emphasis shows a prevailing focus on crisis response rather than prevention, a pattern reflected in the most frequently targeted indicators: imminent violence (105 papers), followed by text-based detection of disclosures (34 papers) [e.g., 3, 113, 126, 136].

By contrast, only 15% of papers addressed **primary prevention**, aiming to shift harmful norms or build awareness before violence occurs. These included educational games to challenge gender norms and promote prosocial behaviour [e.g., 20, 49, 98, 117], and platforms for anti-IPV campaigns [e.g., 5, 21, 78, 111]. Although fewer in number (33 papers), such initiatives align more closely with the public health emphasis on addressing root causes.

Tertiary prevention accounted for 15% of papers, typically focusing on recidivism prediction [119], forecasting for law enforcement [e.g., 73], or post-violence support [e.g., 82]. Finally, only 7% of studies pursued **mixed-level approaches**, combining strategies across the continuum of prevention [e.g., 104].

Taken together, these patterns (Figure 4) reveal that while the field has produced diverse artifacts—such as mobile apps, crisis detection and predictive tools, educational interventions—it remains dominated by reactive solutions. Few technologies seek to reshape the social and relational conditions that enable IPV, leaving a critical gap in primary prevention. This pattern was also reflected in adjacent venues. Of the eight papers we reviewed from the security and privacy research community (e.g., USENIX), seven focused on secondary or tertiary prevention, such as mitigating spyware [65], or training advocate/service workers in supporting IPV victims [120, 144]. Only one paper engaged explicitly with primary prevention by examining how perpetrators share surveillance tactics in online forums [129]. This underscores both the importance of security and privacy contributions in surfacing technology-facilitated abuse and the rarity of upstream prevention approaches, even in fields with a strong track record of addressing IPV-related harms.

4.2 Types of Technology Used for IPV Prevention

We identified fourteen types of IPV prevention technologies (Table 1b), with three dominating the landscape. Mobile applications were the most common (23%), typically comprising panic buttons [e.g., 114, 134] or educational and service resources [e.g., 19, 39]. Physical artifacts accounted for 19%, including wearable devices designed for immediate self-defence [e.g., 114, 131]. Prediction technologies,

Deployment Context	Total (%)
Not Reported	99 (44)
India	27 (12)
USA	19 (9)
Social Media	13 (6)
Indonesia	7 (3)
Bangladesh	6 (3)
Multi-National	5 (2)
USA	5 (2)
Philippines	5 (2)
Brazil	4 (2)
Kenya	4 (2)

(a) Top deployment contexts for IPV prevention technologies.

Technology	Count (%)
Application (Mobile)	83 (23)
Physical Artifact	66 (19)
Prediction (ML)	40 (11)
Internet of Things	39 (11)
Detection	34 (10)
Website	26 (7)
Design/Framework	24 (7)
Other	12 (3)
Surveillance	10 (3)
Physical Device	10 (3)
Prediction (Data Mining)	6 (2)
Digital Game	5 (1)
Records Management	4 (1)
Simulation	2 (1)

(b) Technologies used or designed for IPV prevention.

Table 1: Deployment contexts (a) and technologies used or designed (b) for IPV prevention between 2005 and mid-2024.

such as machine learning and data mining approaches (14% combined), aimed to forecast IPV incidents or assess the likelihood of victimisation [e.g., 47, 109]. These categories all emphasize reactive responses—detecting, interrupting, or forecasting violence once risks are already present.

By contrast, only a handful of studies explored more preventive or educational modalities. Five digital games were developed in the last six years [i.e., 20, 49, 98, 105, 117], most focused on primary prevention through norm change and healthy-relationship promotion. Although rare, these examples illustrate the potential of interactive media to target upstream drivers of IPV rather than crisis moments.

Other technologies appeared only sporadically, such as surveillance systems (3%), records-management tools (1%), and simulations (1%). Together, these smaller categories demonstrate the breadth of experimentation, yet also highlight how fragmented the space remains. Overall, the dominance of mobile apps, wearables, and predictive models shows a prevailing emphasis on managing IPV as it occurs, while preventive and systemic approaches remain comparatively under-explored.

4.3 Populations, Contexts, and Support Structures

Our review revealed a lack of clarity around the populations and contexts for which IPV prevention technologies are designed. Nearly half of the papers (45%) did not specify the geographical location where their interventions were developed or deployed (Table 1a), despite evidence that regional and cultural contexts strongly shape adoption and impact [e.g., 14, 143]. The prevalence of "Not Reported" in our corpus—whether for location, age group, or population—is notable as a research-practice finding: documenting deployment context, target population, and demographic specificity is foundational to HCI's methodological tradition of situated, participatory design, and its absence raises concerns not only for inclusivity but also for replicability, evaluation, and cumulative knowledge-building across studies.

Intimate partner violence is also deeply shaped by cultural, religious, and legal contexts: interventions effective in South Asia, where community and family structures may mediate disclosure, may not translate to North America, where services are more individualized. For HCI, this underscores the need to situate design practices within diverse sociocultural environments, rather than treating "users" as interchangeable across contexts. Without clear information about who interventions are designed for and where they are situated, it becomes difficult for other researchers to assess effectiveness, adapt designs to new contexts, or compare across studies.

When target populations were specified, women were the most frequently cited group (34%), often in the context of safety tools for imminent violence [e.g., 28, 61, 77, 89, 114, 131]. Yet over one in five papers (22%) reported no clear target population, and four in five (80%) gave no information about participant age (Figure 5). This lack of specificity obscures important differences: IPV affects adolescents, adults, and older people in distinct ways, shaped by cognitive development, social dynamics, and available resources [22, 90, 102]. A mobile application, for instance, may work for teenagers with digital access but be inaccessible or irrelevant for seniors. Without careful attention to demographic differences, interventions risk being inappropriate or ineffective. We also found a systematic under-representation of populations beyond cisgender women; only 5 publications explicitly mentioned non-binary, transgender, or gender-diverse communities [58, 67, 69, 93, 146].

Only 37 papers (18%) described meaningful collaboration with communities or end-users, most often through connections with law enforcement, social services, or women's health organizations. Very few reported post-study implementation. Just six papers documented technologies that were deployed in the real world [19, 25, 43, 44, 59, 104], with two more in active progress [20, 132] and five noting future plans [8, 45, 51, 66, 140]. In most cases (94%), however, technologies remained at the prototype stage with no clear path to deployment. Similarly, funding information was rarely reported: only 53 papers (25%) mentioned external support, limiting transparency about sustainability and potential partnerships.

Together, these gaps highlight a critical challenge for HCI: technologies are too often presented as universally applicable, despite clear differences in gender, age, culture, and infrastructure that shape IPV. The absence of consistent reporting on location, funding,

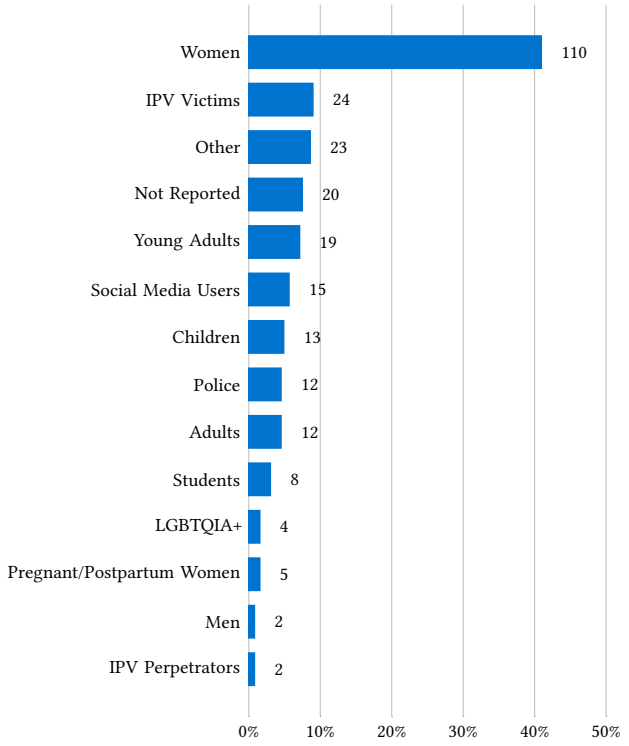

Figure 5: A summary of target population groups from papers identified in our scoping review. Each value expressed as a percentage of all 226 included papers.

and target populations makes it difficult to assess appropriateness, scalability, or sustainability. At the same time, HCI's methodological strengths—community-based design, contextual inquiry, and participatory approaches—are well suited to address these shortcomings. By pairing clearer reporting with deliberate engagement of local communities, the field can move beyond prototypes toward interventions that are culturally grounded, sustainable, and more likely to be adopted in practice.

5 Discussion & Implications

Our scoping review was motivated by the need to understand how HCI is currently engaging with IPV. We used prevention levels from public health research to provide a framework for understanding the various approaches taken within the reviewed literature, which revealed that research has largely focused on secondary prevention by creating physical or digital artifacts to detect and intervene in IPV incidents. We also found that despite an increase in the volume of research addressing IPV, much of it still falls short of reporting who it is designed for or who funds the research. End users and targeted behaviour are also infrequently given the consideration they should be. We now discuss implications of these findings and make recommendations for how future work in HCI can better address IPV.

5.1 Define Intimate Partner Violence

As noted in our results, a substantial portion of papers used "IPV" inconsistently, or interchangeably with related terms such as GBV, VAW, and DV [e.g., 33, 85, 99]. Because these terms mark distinct forms of harm, consistent terminology is essential for understanding user needs, designing appropriate interventions, and facilitating collaboration across research and practice. Inconsistent use can lead to confusion, hinder knowledge integration, and complicates partnerships with community experts such as social workers, counsellors, and psychologists. It may also reduce the impact of HCI work beyond the research community.

This ambiguity also has direct design consequences. IPV involves unique risks shaped by power dynamics, surveillance, and close proximity to the abuser. Technologies developed under broader categories such as VAW or GBV often presume that victims are attacked by strangers and can safely raise overt alarms, for example, by triggering a loud alert. Even papers that explicitly invoke domestic-violence framing can carry these stranger-attack assumptions through into their designs. For example, Chitkara et al. [33] framed their work as a response to domestic violence, but the resulting self-defence artifact—which emits loud alarms and delivers electric shocks—reflects a threat model in which the victim faces a public, time-bounded encounter with an unknown attacker. This is a poor fit for the chronic, surveilled dynamics of IPV (and of domestic violence more broadly, where the abuser is typically a known household member), where overt alarms may be unusable or even escalate retaliation. In IPV contexts, these designs may be unusable or even dangerous, as victims are frequently under constant monitoring. Moreover, technology-facilitated IPV (e.g., stalking via social media) extends abusive control beyond physical proximity, making simple proximity-based protections inadequate [110].

Some inconsistency stems from geographical and cultural variation. Papers from the Global South [e.g., 33, 85, 99] often used GBV, VAW, or IPV interchangeably, reflecting local policy environments and differing understandings of violence categories. These variations are not errors, but they complicate cross-study comparison: as our results on deployment contexts show, interventions in India or Bangladesh were frequently labelled as GBV or DV even when they addressed dynamics squarely within IPV. For example, Agarwal et al. [6] developed a mobile app framed as a general women's safety app, but has designs that are aligned with typical IPV safety planning features (i.e., location/GPS tracking, panic button activation, etc.). Similarly, Hossain et al. [68] designed a mobile app with an integrated chatbot to address DV during COVID-19, however, many of its features like auto-call/block unwanted phone calls, GPS tracking, and audio/video recording are more aligned with IPV than DV, which could include parent-child abuse. Combined with underreporting of target populations and age groups, such inconsistency makes it difficult to assess the relevance of interventions across communities.

Going forward, HCI researchers should use established definitions from reputable global sources such as the WHO [e.g., 97]. A contribution of this review is to surface the WHO's definition of IPV as a working definition for the HCI community, situating it in relation to adjacent terms and clarifying its implications for design and evaluation. Clear and consistent terminology will improve

rigour, support knowledge translation, and ensure that advances in HCI research can be more effectively integrated into public health practice.

5.2 More Attention Needed on Primary Prevention

Our review showed an imbalance in how research engages with IPV prevention. Nearly two-thirds (63%) of the reviewed studies focused on secondary prevention, typically in the form of detection technologies and physical artifacts designed for imminent danger situations [e.g., 2, 9, 23, 116]. These interventions often relied on screening protocols or monitoring systems to identify violence as it occurred or before escalation [e.g., 1, 3, 60]. In contrast, only 15% of papers addressed primary prevention and 15% tertiary, underscoring the limited attention to strategies that tackle root causes or provide post-violence care. This imbalance was also evident in our analysis of Security and Privacy venues. Of the eight USENIX papers we reviewed, seven focused on secondary or tertiary prevention (e.g., spyware detection [65], IoT abuse [122], coercive control [40], financial/tech abuse [15, 62, 120]), while only Tseng et al. [129]'s engaged directly in primary prevention by examining how perpetrators share surveillance tactics online. Taken together, these findings show that research leans towards treating IPV as an event to be detected, or mitigated after risk has already emerged.

Secondary prevention technologies provide important forms of support. They play a critical role in helping individuals navigate immediate risk, make informed safety decisions, and access assistance in moments of crisis. Digital safety planning and decision-aid tools support reflective decision-making as well as improve safety behaviours and strategies [41, 76]. Digital apps that include panic features, emergency alerts, and crisis-oriented applications have been shown to enable rapid response in high-risk situations, while digital and electronic health record-based screening tools increase disclosure and detection of IPV in clinical and service settings [11, 42]. For HCI, these interventions represent meaningful contributions that support victims, practitioners, and institutions once violence is present. However, evidence from intervention research suggests that their impact on preventing or substantially reducing IPV is mixed and uneven. Emezue et al. [46]'s meta-analysis of digital interventions for survivors of IPV found small, short-term improvements in psychological outcomes and psychological violence with digital safety planning tools, but no clear overall reduction in IPV incidence. Other secondary prevention approaches, such as digital screening tools, primarily improve feasibility, acceptability, disclosure, and detection rather than violence reduction itself [86].

These limitations point to an opportunity for HCI to expand its contribution to IPV prevention by engaging more directly with primary prevention. Global authorities, including the WHO and the CDC, consistently emphasize primary prevention as essential for the sustainable reduction of IPV [53, 97]. While such guidance does not prescribe design solutions, it foregrounds the importance of addressing harmful gender norms, unequal power relations, and social environments that normalize control and abuse. Primary prevention is also methodologically demanding in ways that align closely with HCI's strengths: because it targets norms, meanings, and everyday practices rather than discrete crisis events, it requires longitudinal engagement, participatory and community-based design, and field-deployed evaluation rather than short-cycle laboratory studies.

These same features may help explain primary prevention's limited presence in the current technology literature, where it is often confined to educational or awareness-raising formats [e.g., 21, 25, 79, 84]. The primary prevention efforts identified in our review suggest broader directions: interactive games [e.g., 20, 98], educational platforms [e.g., 5, 84], relational guidance and early risk assessment tools [5, 64], and consent-focused design frameworks [e.g., 58, 67]. These examples demonstrate how HCI can intervene earlier in the life course, particularly among adolescents and young adults, and embed prevention into everyday digital experiences. Engagement with primary prevention should be understood as complementary to, rather than a replacement for, survivor-centred and response-oriented work. Framed this way, HCI's contribution lies in expanding the design space of prevention-oriented technologies that operate upstream of crisis response and align with long-term violence reduction, including gender-transformative approaches that shift responsibility away from those already most at risk [118].

5.3 Engagement with IPV Victims, Stakeholders, and End-Users

A striking gap in HCI research was the lack of meaningful engagement with the communities these technologies aim to serve. Only 18% of papers reported any form of community involvement, and just 6% noted that their technology had been or would be implemented post-study. This is notable because participatory and community-based methods are among HCI's distinctive methodological commitments; the gap is therefore not only a content gap in what gets designed, but a research-practice gap in how IPV technologies are being developed within the literature we surveyed. As a result, many interventions remain disconnected from the lived realities of IPV victims, service providers, and support systems, limiting their real-world adoption and impact [94].

Several examples illustrate the risks of designing in isolation. Both Viswanath et al. [135] and Bankar et al. [12] proposed embedding panic systems in women's shoes, requiring multiple taps or button presses to trigger alerts. These designs presumed that victims would be assaulted by strangers in public and could discreetly activate the devices. In IPV contexts—where abuse often occurs in private, under close monitoring by a partner—such assumptions render the devices impractical or even dangerous.

By contrast, community-based participatory research (CBPR) and related participatory design traditions offer a way forward by positioning victims, service providers, and other stakeholders as active partners in design, ensuring that technologies respond to real needs and contexts [63, 133]. Recent work illustrates how these approaches ground technology in lived experience: Ahmed et al. [7] engaged individuals affected by forced marriage alongside support workers to generate design visions, while Tseng et al. [130] co-designed intake and case-management processes with a clinic serving survivors of technology-facilitated abuse. Related efforts show how participatory methods can extend to adjacent domains, with researchers working with women and LGBTQIA+ communities to co-create consent frameworks and safer dating

platforms [58, 67, 145]. Together, these cases demonstrate that collaboration can produce contextually relevant, culturally sensitive, and implementable solutions—an approach that remains underdeveloped in much of the IPV technology literature, and one where HCI's existing methodological infrastructure is well positioned to lead rather than follow.

5.4 Conduct Real-World Testing & Implementation

Critically, we found a lack of real-world testing and implementation in research: only 13 of the reviewed articles reported that their technologies had been implemented, or planned to be implemented, in real-world settings outside of the study. This is a research-practice finding as much as a content finding: field deployment, longitudinal evaluation, and institutional partnership are core HCI methodological commitments, yet they appear only sporadically in the IPV technology literature we surveyed. The absence of real-world use raises concerns about the feasibility and practicality of these tools as genuine solutions for IPV prevention, rather than academic exercises, and it limits the cumulative knowledge the field can build from any individual study. The few examples of real-world uptake illustrate what is possible when design is community-aligned. DeGue et al. [43] supported schools in underserved U.S. communities to adopt the CDC's teen dating violence prevention program through a digital toolkit. Boduszek et al. [20] developed *Jesse*, a digital game for Caribbean youth that was recommended for inclusion in national curricula in Barbados and Grenada. In both cases, implementation success came from collaboration with local stakeholders and sensitivity to community priorities.

Further, there is a growing tendency towards techno-solutionism—a belief that technology alone can solve complex social issues without adequately considering the underlying causes or the broader context in which these issues arise [80]. We found the development of numerous technological solutions that are, at best, superficial [ML/AI models detecting violence in texts e.g., 4, 74, 87, 125] and at worst, potentially illegal, such as self-defense weapons with electric shock generators [114, 131, 141]. For example, it is illegal for non-law enforcement or military individuals to have items with electric shock generators in countries such as Canada [30], Finland [38], and the United Kingdom [103].

These findings underscore the need to treat real-world testing and implementation as core components of IPV prevention research, rather than optional extensions of prototype development. In contexts where interventions directly affect safety, legality, and access to care, design contributions cannot be evaluated solely through technical novelty or laboratory-based studies. Instead, HCI research should more consistently engage with questions of deployment readiness, institutional alignment, and long-term sustainability from the outset of design. This includes attending to legal constraints, ethical risks, and the infrastructures through which technologies would realistically be adopted, such as within schools, healthcare systems, community organizations, or advocacy networks. Without this grounding, IPV technologies risk reproducing techno-solutionist logics that prioritize artifact creation over meaningful impact, or that introduce tools which are infeasible, unsafe, or misaligned with local contexts. Moving forward, HCI should prioritize community partnerships, iterative field-based evaluation, and accountability to the communities and institutions responsible for implementing prevention efforts. When dealing with issues as serious as IPV, it is not enough to develop innovative technologies; these solutions must also be rigorously tested in real-world contexts to ensure they are practical, effective, and capable of addressing the complexities of IPV.

5.5 Tailor Preventions to Specific Regions and Groups

A striking limitation in the reviewed work is the assumption that IPV technologies can be applied universally. Nearly half of the papers (45%) did not specify the region of development, and 22% did not report their intended target population. This one-size-fits-all framing ignores how IPV is shaped by local cultural, demographic, and legal contexts. For example, Rabaan and Dombrowski [107] found that U.S.-based Muslim women experienced domestic violence in ways deeply intertwined with systemic discrimination and Islamophobia, needs that differ markedly from those of Christian women in the same country. Without tailoring to such contexts, technologies risk irrelevance or even harm.

By contrast, interventions designed with explicit community engagement show stronger adoption and impact. Examples include culturally tailored educational tools [5, 39, 64, 142], as well as efforts to prevent teen dating violence such as Murta et al. [91]'s Dating SOS, a computer-tailored intervention to prevent dating violence among Brazilian youth, and DeGue et al. [43]'s Dating Matters toolkit for American adolescents. Projects supported by NGOs or global bodies, such as the United Nations [21, 98], further demonstrate the value of grounding design in local partnerships.

Yet most papers offered no plans for implementation, underscoring a lack of community buy-in. This gap is a missed opportunity for HCI, where co-design and participatory methods are well established. Recent work shows how involving young adults in designing consent-focused virtual reality spaces can surface needs and generate more relevant interventions [145]. Similar approaches could be extended to IPV prevention across diverse populations. Future HCI research should therefore prioritize interdisciplinary collaboration and community co-design, not only to improve cultural fit, but also to ensure interventions advance survivor autonomy, safety, and empowerment while challenging the societal norms that sustain violence.

6 Limitations

Our scoping review highlights key trends in HCI research, including publication patterns, technologies employed, and target audiences. Despite growing interest in IPV within HCI, there remains minimal focus on primary prevention, with less than 1% of papers targeting men as an audience. This imbalance reflects broader tendencies to place the burden of prevention on survivors and marginalized communities rather than addressing structural and systemic drivers of violence. While we have identified these gaps and offered recommendations, substantial work is still required to establish and practice ethical design foundations that do not shift further burdens onto those already most affected.

Our corpus may also over-represent techno-solutionist interventions, such as chatbots and AI-based risk assessment tools. This emphasis raises concerns about substituting trained professionals with automated systems, commodifying care work [108], and marginalizing the labour of women of colour, who are disproportionately represented in caregiving roles and disproportionately impacted by IPV themselves [123]. These risks highlight the need for more critical reflection on the role of automation in IPV prevention.

Our database selection (PubMed, IEEE Xplore, ACM DL, and USENIX) shaped both the scope and the character of our corpus. We chose these databases to capture the technology-focused literature where HCI research is developed, evaluated, and read alongside related computing work; however, this choice has consequences. IEEE Xplore alone accounts for 75% of our corpus, which skews the picture toward engineering- and detection-oriented contributions and likely amplifies the prominence of secondary prevention in our findings. Venues in social work, criminology, and gender studies—such as *Violence Against Women* or the *Journal of Interpersonal Violence*—publish substantial work on primary prevention, including community-based norm-change and educational interventions, that fall outside our search. Their exclusion means our review undercounts primary prevention activity in the broader violence-prevention literature, even as it accurately reflects the imbalance *within* the technology-focused literature with which HCI most directly engages. The interdisciplinary scope we did adopt also introduced variation in publication norms, methods, and disciplinary priorities that complicates synthesis. Our reliance on English-language publications further risks excluding relevant work conducted in other contexts.

A related tension concerns our use of the WHO definition of IPV as an analytic anchor. Because terminology varies across disciplines—with GBV, VAW, DV, and family violence sometimes used interchangeably with IPV—any terminology-based search risks excluding substantively relevant work. We mitigated this at the search stage by using a deliberately broad query spanning IPV, DV, GBV, VAW, family violence, harassment, and sexual consent (Section 3.3), and by retaining papers whose substantive content addressed IPV dynamics even when authors used adjacent terms (e.g., Agarwal et al. [6], Hossain et al. [68]). Still, papers framed entirely within other paradigms—for example, GBV-focused primary prevention curricula that do not engage with intimate-partner dynamics—may have been excluded at abstract screening. A formal sensitivity analysis re-running our coding under stricter or looser inclusion rules was beyond the scope of this review, and we identify it as a useful direction for future synthesis work.

As a scoping review, our contribution is to map the design space of technology-based IPV prevention rather than to evaluate which interventions reduce IPV. We did not extract or synthesize effect sizes, and our findings cannot speak to whether the technologies we surveyed are effective. Existing meta-analytic work suggests the picture is mixed: Emezue et al. [46] report small short-term improvements in psychological outcomes from digital interventions but no clear overall reduction in IPV incidence, and Miller et al. [86] similarly find that digital screening tools improve disclosure and detection rather than violence reduction itself. Coding decisions in our review were made collaboratively and through consensus, but they remain interpretive and reflect the positionality of the authors.

Finally, we excluded related domains such as cyberbullying and harassment. These areas intersect closely with IPV, especially in online communities, gaming, and social networks, and have been well studied in security and privacy research. Future work should examine these intersections more holistically to better situate IPV prevention technologies within the broader ecosystem of technology-facilitated abuse.

7 Conclusion and Call to Action

As IPV continues to devastate communities worldwide, the responsibility on HCI researchers and developers has never been greater. Only 4% of the reviewed studies originated from the ACM Digital Library, signalling under-engagement by core HCI venues and a clear opportunity for leadership. The HCI community can leverage its distinctive methodological strengths—participatory and community-based design, contextual inquiry, trauma-informed practice, and field-deployed evaluation—to address the root causes of IPV rather than only its symptoms.

The call to action is clear: prioritize primary prevention, create tools that shift social norms and behaviours, and foster interdisciplinary community collaborations that draw on diverse fields and knowledge. Equally important, treat design *process* as a first-class contribution: engage affected communities as partners from the outset, report deployment context and target populations clearly, and pilot technologies in real-world settings with rigorous evaluation and the willingness to iterate. By working collaboratively with NGOs, governments, and community organizations, the field can scale successful interventions and contribute to safer communities.

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