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## What is Violence Now?: A Grounded Theory Approach to Conceptualizing Technology-Mediated Abuse (TMA) as Spatial and Participatory

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**Abstract:** Intimate partner violence (IPV) continues to evolve in technological and legal/political ways. The currently sparse scholarship examining how digital technologies and spaces facilitate abusive, coercive, and/or intrusive behaviors among adults in romantic relationships tends to focus on digital abuse methods as mere enhancements or facilitators of abuse – this, despite any clear study of how current digital-users actually utilize and understand *technology-mediated abuse* (TMA). This study fills that foundational void by probing the full nature/content of TMA possibilities as understood by a U.S. community-based social network sample ( $N = 551$ ). Participants'  $M = 7.43$  unique examples ( $SD = 4.00$ ,  $range = 1$  to 30) resulted in  $N = 4,092$  distinct data units examined via hierarchical qualitative analyses. Grounded-theory results suggest TMA is a unique cultural and spatial phenomenon in which inanimate objects or programs (through human-assigned “agency”) serve to perpetrate a new, modified form of IPV, rather than a mere augmentation of existing abuser-tactics. Themes are discussed for future IPV theory and measurement implications and practitioner and policy applications.

Severe psychological aggression from a romantic partner will be experienced in the lifetimes of over 112.8 million U.S. adults; and 35.6% of all females and 28.5% of all males in the U.S. will experience rape, physical abuse, and/or stalking at least once from a romantic partner ([Black et al., 2010](#)). These experiences often are experienced *and* managed via in-person and technological communication which dominates their lives – even after abuse has supposedly “ended”.

*Intimate partner violence* (IPV; ongoing, patterned abuse in romantic relationships) continues to evolve in technological and legal/political ways. Despite progress in how IPV is addressed, the majority of

violence- or harassment-related research to-date still focuses on in-person contexts. Recent studies have begun to focus on digital contexts, but this research has by no means advanced as quickly as the technologies studied. Further, research has tended to focus on mediated “bullying” or “harassment” largely as it occurs with friends, peers, and strangers. Comparatively fewer scholars examine how digital technologies (e.g., machines, mobile tools) and spaces (e.g., online networks) facilitate abusive, coercive, and/or intrusive behaviors among adults ([Henry & Powell, 2018](#); [Martinez-Pecino & Durán, 2019](#)) or others in romantic relationships ([Lindsay, Booth, Messing, & Thaller, 2015](#)).

When digital abuse methods are addressed by IPV scholars and practitioners, an implicit understanding seems to be that perpetrators’ technology usage merely enhances or facilitates abuse for IPV victims (e.g., [Bilic, 2013](#); [Commander, 2018](#); [Thakur, 2018](#)). This assumption persists despite any clear study of the ways *technology-mediated abuse* (TMA), the use of technology to intentionally harm and/or control a current or former romantic partner, is actually conceptualized by current digital-user populations. Instead, most research takes an a priori approach to measuring the concept (usually as a predictor variable) in relation to its prevalence and outcomes; the actual makeup of TMA remains unexplored. Thus, the ways in-person abuse may differ when it is technology-facilitated remain unexamined. This study fills that void by probing the full nature/content of TMA possibilities. It may be that TMA is a unique cultural and spatial phenomenon in which inanimate objects or programs (through human-assigned “agency”) actually perpetrate new or modified forms of IPV, rather than mere augmentations of existing abuser-tactics.

To lay the groundwork for thorough conceptualization of TMA possibilities, I first position this study in terms of current theoretical understandings of intimate violence scholarship and relational communication understandings of intimacy and a/synchronous space. I then present grounded theory analyses of diverse adults’ community-sampled data to re-conceptualize IPV in technological contexts. Ultimately, this study addresses a current societal moment by answering the question of what is included when we speak of technological abuse, “near” versus “far” (and thus, physical versus psychological communication tactics) abusive behaviors, and the disciplinary discourse surrounding these concepts.

## **Need for Operationalization**

A convoluted overlap exists among IPV terminologies used by practitioners, researchers, laypersons, and policy specialists ([Johnson, 2008](#)). This lack of clarity contributes to an inability to generalize across resources and research findings. Such obfuscation becomes even more problematic because of (a) misunderstandings about ways particular behaviors or technologies are actually used physically and psychologically, (b) ignorance regarding understandings of users with diverse participatory strategies, and (c) assumptions that new means of communication can simply be inserted into existing models to explain relational interactions.

## **Definitional Confusions**

As is the case with any new construct – and even old concepts like “violence” – scholars first struggle to delimit what it is they are studying. Counterintuitively, this is often done from a top-down approach. Most TMA-related researchers decide, a priori, which types of harassment/abuse they will examine (e.g., [Donner, 2016](#)). This approach has the potential to result in the same thing being called many names. Lindsay et al. ([2015](#)) showed this concept variance (and overlap) in their table showing repeated themes across “electronic aggression,” “online harassment,” “cyberbullying,” “cyberstalking,” and “technology abuse” (p. 3176). Depending on the sub-discipline – all of which are considered by interdisciplinary communication scholars – TMA may be described as “cyberbullying,” “harassment,”

“abuse,” “stalking,” and many other terms for which the risk factors, outcomes, and treatments actually differ. In some cases, terms such as *cyberbullying*, a common general term applied to any interpersonal context, are even used to describe the clearly different (i.e., due to power dynamics) contexts of romantic relationships (e.g., [Martinez-Pecino & Durán, 2019](#)).

The concept of “technology-facilitated coercive control” described by Dragiewicz et al. ([2018](#)) comes closest, but even this term does not account for the physical and verbal (i.e., not psychological or emotional) abuse and intrusion occurring in TMA. Clearly, with the advent of technologies that affect physical safety (e.g., hacking digital home systems, hiring Dark Web contractors, changing medical prescription records, and remotely sleep-depriving), the nature of what counts as “in-person” abuse has changed; the abuser need no longer be present to be “near” physically or psychologically.

It is not only scholars who vary in terminology. More importantly, based on varying familiarity with and perceptions of IPV severity, researchers using these terms may fundamentally differ in their conceptual understandings from lay participants ([Brion-Meisels & Garnett, 2017](#)). Additionally, the TMA experiences of the “general public” in a community sample may (or may not) differ from the unique experiences of victim-related clinical samples ([Malhotra, 2015](#)). Because agreement has not yet been reached on how these terms are (or should be) implemented in research and practice, I use the term *technology-mediated abuse* (TMA<sup>1</sup>) here to encompass all practices where perpetrators intend to harm and/or control romantic victims using media or technological tools.

As a final praxis consideration, quantitative measures of these concepts are often produced by researchers who modify existing scales of non-technological abuse practices and/or without any apparent groundwork input from participants (e.g., [Martinez-Pecino & Durán, 2019](#); [Van Ouytsel, Ponnet, & Walrave, 2018](#)). In an exemplar case of recent scale creation, Garaigordobil ([2017](#)) measured multiple TMA areas in a Cyberbullying Test. Highly laudable for its generalizability across platforms, it remains unclear how (apart from researcher’s own familiarity?) items were constructed/chosen. Also, most items loaded onto each of three resulting factors at mid-to-low levels (and/or loaded at similar levels to multiple factors). Creating such instruments is imperative, but they should not be formed solely by researchers when the “experts” are clearly general-population media users. Indeed, even when qualitative research (presumably, participant-informed) is used to generate scales, description of qualitative procedures (e.g., emergent design, data analyses steps) tend to be notably lacking (see [Ricci et al., 2018](#) for more on this), a practice that ignores theme nuance or variables uncovered via axial/theoretical or selective analysis stages.

A recent, notable exception to this top-down measurement approach is that of White and Carmody ([2018](#)), who conducted focus groups with college students to uncover user-informed views of cyberstalking and harassment. However, their study focused on general tactics applicable across relational contexts and once again focused on youth perceptions. Thus, as a crucial first step to any further measurement or before yet another term is used to explain the same concept, TMA must be understood through a grounded-theory, participant-driven approach to the topic.

## Using the Old to Explain the New?

Established prior to the ubiquity of digital technologies, Hall’s ([1966](#)) conceptualization of physical space in Western cultures (e.g., 0-18” *intimate*, 4-12’ *social* zones) nonetheless has interesting implications for mediated contexts today. Even online, where the internet’s hyper-personal nature of allowed physically separate people to maintain a sense of intimacy, their actual physical time together (e.g., time since last seen) affected their perceptions and thus future media use ([Brody, 2013](#)). In non-IPV contexts, people associate dominance with close physical proximity in interpersonal situations

([Hall, Coats, & LeBeau, 2005](#)). Perhaps knowing another is always “around” (i.e., “reachable” via technology) serves a similar function in affecting intimacy perceptions of/for those wishing to exert dominance ([Woodlock, 2017](#)).

Ultimately, perceived space both shapes and is shaped by the intimacy level of the parties involved. Particular behaviors are considered more or less acceptable, depending on both the physical closeness *and* the perceived relationship between the two parties ([Burgoon & Walther, 1990](#)). Volume and physical proximity has determined bystanders’ perceptions of bullying behaviors, with intentions to intervene on victims’ behalf more likely when victim and bully were physically near one another ([Pavlich, Rains, & Segrin, 2017](#)).

Often studied in IPV contexts are the highly proximal concepts of intrusion and coercive control. *Intrusion* involves behaviors to invade life and requires people to devote attention and energy to abusers’ communication. Intrusion maintains victim-uncertainty via constant, pervasive methods that result in problematic daily living for victims ([Wuest, Ford-Gilboe, Merritt-Gray, & Berman, 2003](#)). *Coercive control* results from behaviors targeting specific identities in ways that demean, demoralize, threaten, and manipulate to achieve/maintain power over another ([Stark, 2009](#)). Both intrusion and coercive control correspond to Hall’s (1966) description of proxemics used to exhibit power, particularly via personal space violations. Basically, original understandings of space violations as territorial invasions (e.g., [Lyman & Scott, 1967](#)) may not only amplify in-person contexts when digitally mediated, but in IPV contexts, may change/moderate what “counts” as invasions of territory or space.

Dragiewicz et al. ([2018](#)) compiled aspects of media that replicate abusive practices and outcomes previously limited to in-person communication: social convergence, storage, synchronicity, reach (i.e., ubiquity, mobility, accessibility, and immediacy), replicability, and auto-programmability. In addition to these proxemic aspects, any complete operationalization of TMA must account for its potential uses (and varying spatial perceptions) in different demographic and relationship contexts, across the actual media/technologies implemented, and according to users’ intended (again, versus perceived) goals.

**Relational and generational context differences?** Marganski and Melander ([2018](#)) uncovered an overlap of TMA practices in their sample of college students also experiencing in-person IPV. They concluded the role of technology in the experiences of these victims was not separate or additive but rather served to further the overall interconnection of coercion and control experienced by these men and women. As technologies become ever more automated (e.g., programmed to operate at later day/time) and self-driven (e.g., programmed to respond/engage when particular parameters observed), abusers’ use of otherwise “simple tools” becomes more complex. Rather than merely adding ways to abuse their victims, these technologies instead become additional “perpetrators” themselves.

Whereas “cyberbullying” has typically been viewed as an event that occurs mainly online, TMA in IPV relationships may exacerbate and extend (i.e., moderate, rather than mediate) in-person abuse in ways that make it ever-pervasive for victims, even when not “with” their partners ([Thakur, 2018](#)). Beyond mere “contemporary iterations of traditional forms of abuse” ([Dragiewicz et al., 2018](#), p. 611), TMA’s ability to use other people *and* objects to continually infiltrate victims’ lives makes it more intense, prolonged, and harder to escape.

This notion of continual perpetrator-presence is found even among less intimate and/or privately connected parties, such as in cases of online and in-person bullying overlap among work colleagues ([Kowalski, Toth, & Morgan, 2018](#)). Due to sharing private moments in domestic spheres, it holds that the interconnectedness of in-person and technological abuse practices should be more intense and

consequential for those whose lives are or were at some point intimate ([Spitzberg & Cupach, 2014](#)). In this case, interpersonal communication understandings of proxemics become particularly salient.

Unfortunately, what little is known about digital-abuse consequences is limited largely to youth samples of acquaintance “cyberbullying” – not studied among romantic partners. Research has addressed prevalence (albeit underreported), consequences, and risk factors of/for technological harm-perpetration among youth in particular (e.g., [Bilic, 2013](#); [Brion-Meisels & Garnett, 2017](#); [Mitchell, Segura, Jones, & Turner, 2018](#); [Stonard, Bowen, Walker, & Price, 2015](#)). Even if IPV scholars were to base measurement and outcome studies on existing cyberbullying research – even studies like Martinez-Pecino & Durán’s ([2019](#)) that look at romantic relationships among youth – they are limited because findings for youth do not always hold for adult IPV ([Reed, Tolman, & Ward, 2017](#)).

Adult IPV victims in most cultures are held responsible for their abuse to some extent, if not for causing the abuse, then certainly for not physically leaving (e.g., “allowing” the situation to continue) ([Yamawaki, Ochoa-Shipp, Pulsipher, Harlos, & Swindler, 2012](#)). The youth research-focus may be tied to adult populations’ higher societal IPV stigma. According to how stigma operates (i.e., culpable, autonomous targets blamed more for their victimization; [Goffman, 1963](#)), it may be less controversial to devote attention and resources to digital technologies involving children and youths, who are seen as more blameless for their circumstances than adults. Even this may be moot, as among youth and adults, it is clearly more difficult to “leave” permanently when abusers utilize technologies to track, influence social networks, and control personal identities (e.g., banking, impersonation).

**Abuse tools and strategies.** In an attempt to alert potential victims and to raise public awareness, many web-based organizations have created “checklists” of various practices identified as abuse tactics (e.g., [Malhotra, 2015](#); [NNEDV, 2016](#)). Additionally, “working paper” or policy documents discuss the issue in preliminary ways (e.g., [Southworth, Dawson, Fraser, & Tucker, 2005](#); [Tandon & Pritchard, 2015](#)). Most of these available typologies (a term I use loosely here) are incomplete (e.g., contain only exemplar tactics), out of date (although still referenced by scholars, including myself), anecdotal or limited in generalizability, and/or appear to have been constructed without reliance on existing research- or theory-based scholarship.

In most cases, TMA researchers consider behaviors limited to internet-based (e.g., social media, email; [Finn, 2004](#)) communication, even though *technology*-mediated abuse now encompasses both “online” and “offline” use ([Short & McMurray, 2009](#)). Clearly, it does matter what typologies include – crucially so for victims, not to mention the practitioners treating them. Some IPV victims (particularly those experiencing online identity theft and/or slander) seeking help have preferred online resources *unless* their IPV was in the form of “obsessive relational intrusion” or other similarly “physically” close, intrusive harassment; in those latter cases, they preferred in-person support over online methods ([Eckstein, 2020](#)). Even internet-focused youth may propose in-person methods of dealing with online abuse ([White & Carmody, 2018](#)), a testament to ongoing overlap between on/offline worlds.

Recent examinations of technology in relational contexts show the importance of viewing TMA as distinct from traditional methods. For example, looking at stalking among an Australian sample of victims and advocates, Woodlock ([2017](#)) found that TMA primarily maintained “a sense of the perpetrator’s omnipresence” *while* it also facilitated more traditional abuse tactics like isolation or humiliation. Thus, although the few studies that do examine implementation methods seem to suggest they vary, what remains unclear is: Do in-person IPV and TMA fundamentally differ? Are they just two ways of perpetrating the same thing? Or is it more complex, both/all cases: additive, moderating, mediating? To explore media implemented, and use-variety of, strategies, I proposed the following:

**RQ1:** What is the range of possibilities for perpetrating IPV abuse via technology?

**RQ2:** What is involved in the nature or strategies of TMA experiences?

Fully examining these questions extends not only *how* we communicatively theorize IPV (and its causes and outcomes) and thus conceptualize TMA, but also user-validates how we measure the construct in research. Results of these analyses can inform policy decisions regarding TMA treatment and education.

## Methods

### Participants and Sampling

To minimize researcher or measurement bias and to allow this phenomenon to emerge from the actual population it affects, any formative TMA study should be grounded in solely inductive data from the general population. As such, I used community-based social network sampling to recruit 551 (235 or 42.6% male, 263 or 47.7% female) participants across multiple Northeast and Midwest U.S. states to take an in-person open-ended survey about their opinions related to technological harm. In-person data collection was used to reduce potential sample bias associated with online-only users and to engage a sample with more diverse user experiences. Participants ranged from 18 to 81 years old ( $M = 27.42$  years,  $SD = 12.31$ ) and primarily identified as White ( $n = 372$ , 67.5%), Black ( $n = 69$ , 12.5%), or Latinx ( $n = 54$ , 9.8%).

To avoid unintentionally priming participants while yet preparing for potential sensitivity, IRB-approved recruitment statements and consent forms indicated this anonymous study sought “opinions about ways technology can be used to harm others” and focused on hypotheticals. Further, contact information for multiple domestic violence-related counseling resources was provided to participants prior to and after the study.

### Procedures

After completing basic demographic information, participants read the following prompt:

We use technology in our romantic relationships in many ways. Some of these are considered “darker” than others. In the spaces below, write as many ways as you can think of that someone might use technology to threaten, stalk, or hurt someone with whom they ARE or WERE IN A ROMANTIC RELATIONSHIP. *Be very specific with names and types of technology/programs and specific tactics/strategies to go about doing it.*

Over 30 blank spaces were provided to encourage as many examples as possible.

### Analyses

Every example was first subject to open-coding. Participants provided  $M = 7.43$  unique examples ( $SD = 4.00$ , *range* = 1 to 30), which resulted in  $N = 4,092$  distinct<sup>ii</sup> data units across the entire sample. Theoretical saturation was reached very early (within the first 100 units); example-differences that did emerge occurred more in “type” specificity than by theme (standard, per [Corbin & Strauss, 2008](#)). Using a constant comparative method, clusters of themes were uncovered that addressed RQs via generative questions ([Strauss, 1987](#)).

Hierarchical qualitative analyses uncovered various levels including: (a) exemplar-indicators, which supported (b) concepts, which supported (c) variable categories, which supported (d) two supra-theme clusters (see Tables [1](#) and [2](#)). Using distinctions described by LaRossa ([2005](#)), categories within the Media Type supra-cluster theme were delineated by “grouping of putatively similar but not identical”

(p. 842) concepts, whereas Behavior Tactic theme categories were formed via *dimensionalization*, or “grouping of putatively dissimilar but still allied” (p. 843) concepts.

Data were also subjected to an axial stage of grounded theory analyses ([Strauss & Corbin, 1998](#)), labeled “interpretive data” in the following section. This stage looked at relative importance, or the categories and their *subcategories* “in terms of paradigm items (conditions, consequences, and so forth)” ([Strauss, 1987](#), p. 32). However, due to the nature of these data, axial analyses used here more closely mirror Glaser’s ([1978](#)) approach using “six Cs” (i.e., “causes, contexts, contingencies, consequences, covariances, and conditions”) (p. 74) situated in theoretical or critical analyses: Present data were considered *in relation to* what is known about victims, as established in prior research. This stage revealed *process* and *interaction* trends across all 4,092 examples.

Finally, as a point of clarification, both analysis stages worked by understanding data in terms of what it said about perpetrators *and* victims. This was possible only because the prompt that participants received (and the data they provided indicated it) was intended as descriptive of both perpetrator tactics and victim immediate-outcomes. In other words, data was neither prompted nor interpreted here along lines solely limited to the attacker or victim; tools and behaviors were identified in such a way as to indicate both *how they were used* and for what purpose (i.e., to facilitate particular behavioral outcomes) or in what way they ended up affecting victims. Therefore, typical victim “outcomes” (e.g., depression, avoidance, etc.) of such tactics were not measured in this study; the direct, immediate *outcomes of the tactics* (e.g., prohibiting sleep, being drugged or tracked) were studied as cause-effect-experiences.

## Findings

Most individual indicators mentioned (whether implicitly or explicitly) dual elements, forming two supra-theme clusters: Media Type, classified into three main variable categories, and Behavior Tactic, classified into 12 variable categories. Individual categories did not co-occur within each themed taxon.

I addressed each RQ at two levels:

1. RQ1 answered the range of TMA experiential options and RQ2 examined potential goals, strategies, and tactics of those options. I present these findings sequentially in the following sections, with discussion specific to each category embedded where appropriate.
2. In a final findings section, I discuss both RQs in terms of axial results *across* the themes and categories to illustrate the process interactions, consequences, and context-implications emerging from these data.

### Media Types: RQ1

Of all examples, 3,430 specified a type of media used to harm; 662 of all examples did not mention or imply a specific media or technology type. Three variable categories encompassed all indicators mentioning media types: Online Social Media, General Media Tools, and Web-Based Resources.

**Social media.** A majority of indicators either specifically named or indirectly alluded to a harmful behavior using online social media. Indicators referenced (a) web-based technologies that focus on (b) user-based or -generated content for which (c) participants create site-specific profiles, with (d) a primary goal of social network communication among other site users. Most mentioned specific companies, but this category also included broader exemplars like “social media,” online “posts” or “likes,” or other implied social media, such as behaviors only possible via social media (see [Table 1](#)).

Grouping of putatively similar indicators produced two concepts in this category: Synchronous versus A/synchronous social media. *Synchronous social media* included sites intended to discover people or extend someone's social network, or chat services embedded in existing social media sites where users had pre-established networks. Any media where immediate response was implied or necessary (like with multi-player web games) was included here, as were sharing sites with expiring content or limited views before disappearing (e.g., Snapchat). In contrast, *a/synchronous social media* involved sites set up to share comments, videos, or images; those whose sole purpose was not social community were also included here when references to them explicitly indicated social uses, such as posting in comments sections of YouTube posts.

Baym (2015) previously noted that media messages may “feel more immediate and personal” (p. 15) when synchronous than when asynchronous. However, the current study illustrates the potentially fading relevance of traditional media dichotomies. With alerts set up to notify users of any online updates, the issue of what counts as “synchronous” becomes muddled. Thus, the term “a/synchronous” (i.e., slash identifying with or without “a”) both labeled and described the concept-issue of this category. Essentially, abusers can now transcend not only space, but also time – a feat affecting victims' physical realities. Victims' situations may become even more surreal, as they can no longer rely on time/space “off” or “free” from potential abuse, an aspect I discuss with specific illustrations shortly.

**General media tools.** Next, a category for “general” media tools referred to technologies or machines used to perpetrate or facilitate abuse and was indicated by usually-generic (i.e., non-proprietary, multiple brands available) and/or open-source tools and by behaviors implying use of such instruments (e.g., “taking pictures,” “texting,” or recording audio/video). This category involved two concepts derived from similarly grouped indicators: Physical Technologies and Software.

*Physical technologies* described machines such as land-line or cellular phones (both “dumb” and “smart”), cameras, physical keyloggers or skimmers, GPS locators, and audio tools used to record and/or transmit. Participants identified actual *software*, whether remotely downloaded or obtained/installed physically, used to facilitate abuse via attacks on others' homes, computer systems (e.g., data theft, malware sabotage), emotions (e.g., meme creators to publicly shame/mock), identities, and personal resources (e.g., finances, data records obtained via ransomware or digital keyloggers). Tools to mask attack or theft (e.g., single-use emails or cryptocurrency for illegal purchases) and to monitor/track victims (e.g., search history trackers) were also mentioned here. For example, spoofers could be used for many purposes including copyright distortions; hiding or faking GPS locations; DNS spoofing or masking caller-IDs; referrer spoofing or ref-tar to gain unauthorized access; website, script, or IDN spoofing or ARP/cache poisoning/routing to scam, phishing, or draw into an attack.

Unsurprisingly, both physical technology and software were seen to either simulate perpetrators' presence while monitoring/observing victims or their data and/or to disguise evidence of having done so. In essence, the tool becomes an “entity in the room” with the person wherever they go. In cases where tools can be programmed, such as alarms or virtual assistants, they may seem imbued with personal agency. Knowing an inanimate object such as a computer is not “out to get you” may be irrelevant as people scream at it for shut-downs or lost files; they will eventually get over it. For an abuse victim, however, the same “crazy-making” behavior of an alarm set to go off randomly while sleeping or lights blinking or dimming “on their own” becomes its own form of torture. Research has clearly documented similar tactics and the victim-anguish caused in person (Volcler, 2013; Walker, 2000).



**Web-based resources.** Finally, a specific internet (data)-based category was indicated by explicit mention (or behaviors implying use) of websites and/or applications (hereafter, apps) that were (a) non-social websites or downloadable apps (b) created for a specific, usually exclusive-to-the-user purpose. Although many social media companies have multiple site-tools and provide remote-use apps, the web-resources category emerged distinctly from indicators specifying goals separate from public/social elements. For example, although users could use the Facebook mobile app to find prostitutes, its primary use is to connect users to the main, public, social website and so it was not included in this final Media Type category. Similarly, tools available off-line or created pre-web (e.g., hand-held cameras, tape-recording audio equipment) were not included in this theme unless the participant explicitly referred to a web- or remote-based version providing a unique use of the tool (e.g., Waze GPS tracking app or web-based map editor). Web-based resources were indicated by apps requiring download or installation, use of cellular data to run, or sites with embedded services.

Similar indicators grouped in this category formed three concepts involving use of: Extra-Legal Websites, Legal Websites, and Phone/Computer Apps. *Extra-legal* websites were both those considered illegal in the U.S. – such as DarkWeb sites for drugs, weapons, or people (e.g., sex slavery, prostitution, hitmen) – as well as those not necessarily *illegal*, but which skirt the law or are generally understood to facilitate unlawful or ethically tenuous behaviors like revenge or blackmailing. *Legal websites* were mentioned even more frequently for the purpose of harming a partner and involved dating, appearance-rating, or porn-viewing sites to make partners jealous or hurt; search engines to “Google” people generally; and specific info-sites to determine private data, track, impersonate and/or frame the victim. Finally, *phone/computer-used apps* largely included programs built for specific purposes such as real-time GPS systems for finding/tracking people; checking-in (e.g., video/chat apps), gaming with, or rating locals to annoy/bother victim; mobile dating apps to cheat or make jealous; and ways to avoid being identified when practicing all of the above (see [Table 1](#)).

The overlap in concept uses in this category suggests that, similar to the disintegrating dichotomy between a/synchronicity mentioned earlier, there is an ever-minimizing distinction between mobile and non-mobile technologies. Whereas computer programs may have previously operated only at home, laptops/readers have changed this dynamic. Even programs/data downloaded for use elsewhere traditionally required access to a direct port or “home” (e.g., early iPod models or MP3 players) connection. No longer the case, cellular “data” use on smartphones and/or freely available WiFi facilitate spontaneous technology use that abusers can adapt to maximize their violence strategies according to the situation, time, and/or place.

Table 1

## Hierarchical delineation of technology-mediated abuse construct: Media Type theme (N = 3,430)

Categories & Emergent Concepts <sup>a</sup>	Exemplar Indicators <sup>b</sup>
Social Media (n = 1,801; 52.5%)	M = 3.27 (SD = 2.29), range = 0-17 unique examples
<i>Synchronous</i>	chat site (e.g., ChatRoulette, Omegle) or chat service on site (e.g., AOL IM, GoogleChat) social gaming (stationary) (e.g., Fortnite, Twitch, WoW) timed/temp sharing (e.g., Snapchat)
<i>A/synchronous</i>	board/forum (e.g., 4/8Chan esp. /b/, Reddit, Stormfront, Usenet) email/direct message (e.g., Facebook DM, Gmail) social page/feed/blog share/comment (e.g., Facebook, LinkedIn, Tumblr, Twitter) video/vlog/pic share/comment (e.g., DarkLair, (Form)Spring, Instagram, Pinterest, YouTube)
General Media Tools (n = 1,091; 31.8%)	M = 0.98 (SD = 1.57), range = 0-14 unique examples
<i>Software</i>	anonymity/spoofers (e.g., DNSProxy, email/call single-use or ID block, NordVPN, Tor) attack bot (e.g., DoS, ZeroAccess) or homeware (e.g., Apple HomeKit, Airplay) content creation (e.g., BitTorrent) or obtaining (e.g., meme creator) cryptocurrency/bitcoin malware (in/direct) (e.g., trojans/worms, viruses, packers, constructors) spy/ransom ware or site-trackers (e.g., cookies, digital keylog, Ryuk, StatCounter, WannaCry)
<i>Physical technology</i>	audio tools (e.g., alarms, recorders, transmitters) computers (desk/laptop, pads/readers) data storage/recording (e.g., external hard drive, physical keyloggers/skimmers) GPS, geotag phones (traditional & smart) virtual assistants (e.g., Alexa) Web/nanny cams
Web-Based Resources (n = 538; 15.7%)	M = 1.98 (SD = 1.98), range = 0-12 unique examples
<i>Extra-legal websites</i>	blackmail site (e.g., UGotPosted) cheating/sex site (e.g., AshleyMadison, Backpage Mailorderbrides) dark web search engine (e.g., DuckDuckGo, Torch) dark web site (e.g., HackerBay, ScanIndustry, OnionLab, Brutual) revenge site (e.g., IsAnyoneUp, Revenge, MasterofRevenge, WinByState)
<i>Legal websites</i>	blogs (e.g., Wordpress) dating sites (e.g., Match, e-harmony, OKCupid, zoosk, Plentyoffish) rating/judgment sites (e.g., Hot or Not) sales/wanted sites (e.g., Amazon, Craigslist, Ebay) search engines-general (e.g., Ask, Google) search engines-specific info (e.g., Whitepages, Spydialer, PeopleFind)
<i>Phone/computer apps</i>	ID blockers/locators (e.g., *67, PhoneMyPhone) mobile check-in/ratings/gaming (e.g., 4Square, PokemonGO) mobile dating (e.g., Blendr, Grindr, Tinder) real-time directions/mapping (e.g., Waze, Googlemaps) share-ware/storage (e.g., Dropbox, SHAREit) straight-to-voicemail or -text (e.g., PhoneTag, SlyDial) text/chat/video call (e.g., Facetime, kik, Messenger, Skype, TikTok, WeChat, WhatsApp, Zoom)

Notes. Each category in the Media Type theme involved concepts grouped by similar indicators. Category frequencies are unique examples per-participant. <sup>a</sup>Percent of all three categories. <sup>b</sup>Verbatim (i.e., quotations) from participants' data.

## Behavior Tactics: RQ2

Based on all examples provided, 3,284 specifically mentioned or implied actual communication behaviors or tactics to harm via technology; 808 examples included no behavior or goal mentioned (i.e., only media listed). By grouping both similar and "putatively dissimilar but still allied" indicators, twelve non-overlapping categories were dimensionalized (LaRossa, 2005, p. 843). I describe them here by descending occurrence frequency (see Table 2).

**Victim-intrusion.** One of the most common categories, intrusion to the victim involved perpetrator intentions to perpetually interfere in a victim's life. Intrusion, more than any other category, is particularly dependent on technology. Media's ubiquity and the omnipresence of mobile technologies have been covered extensively by researchers in IPV and non-TMA contexts. From victims' perspectives, intrusion has always been the lynchpin in an abuser's arsenal to coercively control; victims feel like they can never be free from the abuser – that s/he is always *with* them – and these constant reminders reinforce that fact ([Wuest et al., 2003](#)). In person, intrusion is often a “feeling” of presence stoked by the abuser; online, alerts and mobility make intrusion a physical reality. Intrusion- recipients often report that the “little things” add up to be worse and/or more controlling than seemingly more “intense” actions of perpetrators ([Lavy, Mikulincer, Shaver, & Gillath, 2009](#)), particularly when experienced online ([Chaulk & Jones, 2011](#)). This type of *aggravating invasion*, although seen by many more as an “annoyance,” was nonetheless mentioned more frequently as a harmful behavior. Notably, intrusion can be experienced by victims asynchronously from the actual perpetration of it. Simply sending a message that they are being monitored online or that the abuser knows where they are (even if untrue) is enough to make victims feel trapped and unable to “escape” their perpetrators ([Woodlock, 2017](#)). Particularly when synchronous media are used, intrusion reinforces a “sense of placelessness . . . making people feel more together [when] apart” ([Baym, 2015](#), p. 15). Victims report that media ubiquity (i.e., need to have phone with them at all times for other life-tasks) makes it particularly useful for abusers invading their life when otherwise distant ([Stonard et al., 2015](#)).

**Emotional attack.** Another most-common category was emotional attack, which included two constructs: Verbal and Emotional abuse. *Verbal abuse*, or attacks of a general, hostile or “mean” nature such as name-calling or profanity; and *emotional abuse*, or demeaning comments specific to the self-concept or identity of the victim. Emotional attacks involve direct communication intended to hurt feelings via verbal insults or more disturbing provocation such as surprising (e.g., sending unidentifiable links) with discomforting visual content such as aggressive porn, or grotesque imagery. Finally, emotional attacks may take the form of “trolling” via “deliberately offensive speech” with a goal of “creating emotional impact in targets” ([Marwick & Lewis, 2017](#), p. 5).

Typically, in offline contexts, verbal and emotional/psychological abuse are distinguishable in that the former is generalized and intended solely to attack but the latter is person-specific and intended to dominate or discomfort to control. With TMA, however, the victim may be the only person who sees the message as an attack or realizes the severity/impact of it. Without context, a “pet name” or profanity can be either joking or mean-spirited with hidden meaning. Further, the sometimes public nature of an ostensibly verbal-abuse-post may *make it into* an emotional-abuse-message due to the shame of others seeing it.

**Shaming.** The third most-common category was shaming, which included sharing information the victim preferred to keep private. Technology's ability to store, replicate, and alter content becomes particularly useful for perpetrators wishing to perpetrate this aspect of abuse ([Henry & Powell, 2015](#)). This information can take two forms. It may occur as *internal shame*, truly shameful (i.e., real guilt-based behaviors) information the victim actually intended to keep private for face-saving purposes. Or, it may be *external embarrassment* or “merely” embarrassing (i.e., fictitious, as in cases where the perpetrator modifies existing pics, like photoshopping nude images) to the victim who worries others will perceive him/her that way.

Shaming is not effective unless the tactics used are personally specific and the identity attacked is salient to the individual ([Goffman, 1959](#)). In the case of digital technologies connecting people who

interact both on- and offline, a blurring of public and private self-presentations occurs ([Rosenberg & Egbert, 2011](#)). In cases of sexual shaming – the most oft-referenced type, particularly for females – perpetrators latch on to a particularly valued aspect of self-identity ([Salter, 2016](#)). Thus, perpetrators are able to use technology to take what would otherwise be direct emotional attacks to another level by making them public ([Milner, 2013](#)).

**Info stalking/lurking.** Behaviors that allow abusers to keep tabs on others' activities and information were indicated in this category. Limited only to informational aspects (i.e., not physical observation), examples include Googling someone or constantly monitoring someone's Facebook feed, known as "story-stalking." Most of these tactics occur directly – without any outside assistance – because most info can be found publicly online with enough effort. For example, even if blocked from a victim's social media page, abusers can "catfish" their way in as a fictitious person or simply look via a shared friend's access. These tactics fell into two sub-groupings, based on their legality.

*Legal* practices include anything a stranger could legally do, and, perhaps, healthy relationship partners are even "expected" to do (e.g., seeing call history when paying phone bill or view-record when using Netflix, or getting updates on partner's posts as a "friend" on Facebook). The nature of info stalking is such that even formerly nefarious practices have become standard/acceptable practices among non-violent couples today. Depending on their relationship and age, things like looking through a partner's phone, checking their search/browser history, or Googling them may be considered perfectly reasonable ([Reed et al., 2017](#)).

*Extra-legal* practices are those which in themselves are not necessarily always against the law, but would be difficult to perpetrate without breaking some other law. For example, installing spyware is not illegal, but breaking in to someone's account/computer/home to do so would be. Again, the line is blurry – something lawmakers have yet to take into consideration – because what was acceptable practice while in a relationship may become a perpetration tactic later.

**Coercive control.** A distinct category of coercive control was found to correspond to the concept theorized by Stark ([2009](#)). Namely, coercive control was identified in practices that demoralize, threaten, and manipulate; demeaning behaviors may also occur, but are done in the service of reinforcing aspects of control and power over the victim. Three distinct goal-based practices emerged from participants' data: Emotion Manipulation, Action Manipulation, and Induced Dependency.

*Emotion manipulation* included practices that both hurt *and* simultaneously dominated victims' mood and feelings. For example, perpetrators may invoke jealousy and/or psychological pain by actually, threatening, or pretending to cheat, block, or "ghost" messages/calls or to harm themselves (i.e., the perpetrator) or those close to the victim. A second concept involved behaviors intended to *manipulate/control victims' actions* via practices such as blackmail or threatening to harm or shame. For example, abusers may "catfish" a victim online to create a "new" relationship with them for purposes of further emotional manipulation, a useful tactic to control their actions later (e.g., getting them to "meet" or show up at particular locations, or threatening to break up with them unless they do certain behaviors). Finally, *dependency induction* can occur via the strategies just mentioned in order to make it seem they must rely on the abuser. Other practices that can force victims to depend on abusers include "crazy-making" or "gaslighting" behaviors such as re-programming TV channels or adjusting light/sound/user settings and insisting nothing has changed or been done.

TMA clearly "expands abusers' sphere of control beyond previous spatial boundaries" ([Dragiewicz et al., 2018](#), p. 610). Shown through emerging concepts, people's understanding of TMA is also that it operates to simultaneously achieve multiple goals. All aspects of coercive control, as it has been traditionally conceptualized, were identified in this study.

**Physically track/isolate.** Tactics to monitor someone's location or physical behaviors (i.e., not merely their info or activity) were categorized here with two concepts. The concept of *physical stalking* in particular is facilitated by technological "helpers" (primarily legal ones) that notify the abuser where the victim is at all times. A second element of this category is *isolating control*. Thus, one TMA behavior can serve multiple functions in that any tactic used to locate someone can also be used to then entrap or isolate them further. In essence, TMA allows abusers to perpetrate physical behaviors of domination over their victim. It also assists isolation – both voluntary and involuntary – even more than was possible in traditional abuse contexts. Knowing (or being led to believe) they are being monitored leads victims to avoid locations where their abuser may be able to find them; in essence, victims limit their life and isolate themselves to reduce in-person abuse ([Geistman, Smith, Lambert, & Cluse-Tolar, 2013](#)). The irony is that, far from avoiding abuse, the practice of isolation is itself a form of control/abuse.

**Slander.** Whereas shaming involved "outing" victims, usually with things they had actually (but not always) done, the slander category emerged from abusers clearly creating false narratives about the victim. This is not a "new" form of abuse, but technology takes it to an entirely new level. Instead of individually calling, writing, or in-person gossiping to others to complain about the victim, an abuser can now reach many more people with less effort via social media or group texts/emails. Acknowledged as a key tool of cyberbullies, the information (i.e., gossip/rumor) spread by a romantic partner often is assumed to be much more credible. Notable as a way to control the "narrative" about someone, disinformation is used to harm victims' reputation, something much easier to do in a world with information-overload where people rarely fact-check claims ([Marwick & Lewis, 2017](#)).

**Steal/hack resources.** Its own emergent category, stealing or hacking resources is one of the few areas current laws actually address. This is not to say that prosecution or recovery is simple, but due to its use against corporations and government agencies, this particular practice of abusers has become clearly illegal ([Dunlap, 2012](#)). Nonetheless, myriad legal tools exist to help users facilitate this illegal practice. Abusers can change passwords; access previously-shared accounts to control, take, or sell off victims' resources; run up charge accounts or spend funds; and simply destroy property on which the victim relies for personal income or freedom. Traditionally easiest for married couples who legally access shared resources, these behaviors today are simple to anyone with access to a little shared knowledge (e.g., password or "favorites" recovery questions) and/or access to technology.

**Impersonation/framing.** Mentioned in other categories, technology makes the traditionally expert-level skill of forgery or info-modification available to anyone. This category emerged as distinct in that tactics were intended not solely to "hurt" victims' feelings, but rather to actually get them in trouble or make them susceptible to (sometimes physical) punishment. Two concepts defined this category. First, *reputational or relational harm* involves abusers pretending to be the victim and then acting in negative ways. For example, criticizing friends and family or being generally mean online would certainly harm personal relationships (which can then serve to isolate the victim even further). Abusers can harm someone's livelihood if, acting as the victim, they begin spamming or otherwise harassing victims' clients.

Some of these behaviors move beyond mere impersonation to a framing concept that has *legal implications*. For example, committing illegal activities such as child porn or abuse would immediately result in jail time were the victim accused. As such, these behaviors can use forgery (e.g., photoshopping bruises on children) or simple access to the person's account (e.g., actually downloading pictures of naked children). This may be seen as a personally enacted/direct (by the abuser) form of remote or secondary "swatting" or getting the victim in trouble, which leads to the next category.

Table 2

Hierarchical delineation of technology-mediated abuse construct: Behavior theme ( $N = 3,284^a$ )

Categories & Emergent Concepts <sup>b</sup>	Exemplar Indicators <sup>c</sup>
<b>Victim-Intrusion</b> ( $n = 583$ ; 17.8%)	$M = 1.06$ ( $SD = 1.45$ ), $range = 0-13$ unique examples
	call hang-up or text ghost
	constantly “like”
	constantly call/text (ID hidden or revealed)
	spam
<b>Emotional Attack</b> ( $n = 583$ ; 17.8%)	$M = 1.06$ ( $SD = 1.40$ ), $range = 0-10$ unique examples
<i>Verbal Abuse</i>	swear/profanity
	mean comment or name-call
<i>Emotional Abuse</i>	send or trick (e.g., “Rick-roll” or bit.ly) to NSF sites or sexts or unwanted porn (e.g., Goatse, Tubgirl, LemonParty, MEatspin)
	demeaning comment (i.e., self-concept, personal insult)
	troll
<b>Shame</b> ( $n = 501$ ; 15.3%)	$M = 0.91$ ( $SD = 1.13$ ), $range = 0-3$ unique examples
<i>Internal-Shame</i>	post only worst pics/vids
	leak/send private info to others
	post personal/private (e.g., sexual, family problems, illnesses) pic/vid/info
	publicly attack (to “out” conflict/abuse status to public)
<i>External-Embarrassment</i>	subtweet/re-post/screen shot
	embarrassment-dox
	meme or photoshop to embarrass
<b>Info Stalk/Lurk</b> ( $n = 376$ ; 11.5%)	$M = 0.68$ ( $SD = 1.09$ ), $range = 0-7$ unique examples
<i>Legal</i>	check Google
	run background
	story-stalk/check social feed, status, or check-in (e.g., Instagram, Facebook)
<i>Extra-Legal</i>	check browser/search/call/text histories/records
	observe/monitor activities or get info (e.g., hack, trackware/spyware, or catfish/phish)
<b>Coercive Control</b> ( $n = 357$ ; 10.9%)	$M = 0.65$ ( $SD = 1.09$ ), $range = 0-11$ unique examples
<i>Emotional Manipulation</i>	change relationship status
	cheat/form extra-relational connections (e.g., AshleyMadison)
	give silent treatment, block/ignore/ghost
	guilt/accuse for (real or imagined) media use or online behaviors
	jealousy-induce (e.g., Post/Like pics of or Excessively message new lover/ex/interests)
	threaten to harm self (privately or publicly) (e.g., “text/post is about to kill self”)
	threaten victim about close others (e.g., harm/embarrass/take family, pets)
<i>Action/Control Manipulation</i>	blackmail or general manipulation (e.g., catfish “new” relationship with victim)
	threaten victim-harm/shame (e.g., post/send “happyslapping” vid to infer intent)
<i>Induced Dependency</i>	control settings on needed technology (e.g., voicemail, TV remote, internet)
	gaslight/crazymaking
	register/revert “shared” accounts (e.g., bank, legal documents) to perp’s name
<b>Physical Track/Isolate</b> ( $n = 237$ ; 7.2%)	$M = 0.43$ ( $SD = 0.80$ ), $range = 0-6$ unique examples
<i>Presence Stalking</i>	locate via posted check-ins or geolocations
	hack webcam or hide cam (e.g., “molka”) to watch
	monitor or influence location (e.g., hack equipment/accounts, catfish w/o revealing)
	search physical address (e.g., to find/monitor at home work/friends)
	track via GPS/phone (e.g., FindmyPhone) or car map-history
<i>Isolating Control</i>	block or child-guard help-sites/resources/programs/outside access
	delete or block personal contacts (all or specific ones)
	forbid internet or social media

<b>Slander</b> ( <i>n</i> = 232; 7.1%)	<i>M</i> = 0.42 ( <i>SD</i> = 0.78), <i>range</i> = 0-6 unique examples
	doxxing to “out” (e.g., <i>get fired, ruin rep</i> )
	forward/post/leak victim-incriminating text/email/pic/vid (public or individual)
	spread/start gossip, rumors (e.g., <i>post, email others</i> )
	subtweet/subpost (e.g., <i>out-of-context or modified</i> ) to implicate
<b>Steal/Hack Resource</b> ( <i>n</i> = 175; 5.3%)	<i>M</i> = 0.32 ( <i>SD</i> = 0.74), <i>range</i> = 0-6 unique examples
	change user-settings/languages/passwords or cancel tech access/accounts
	delete/steal all data/records/contacts re. income/career (e.g., <i>leads/associates</i> )
	destroy/harm property re. income/career (e.g., <i>phone, computer virus/malware</i> )
	get banking/credit info/steal (e.g., <i>withdraw funds, close accounts</i> )
	phish for data/resources
	plagiarize/steal work or personal resources (e.g., <i>family pics, deeds/titles</i> )
	purchase (e.g., <i>max credit</i> ) or sell/request (e.g., <i>car/house, credit-check</i> ) “for” victim
<b>Impersonate/Frame</b> ( <i>n</i> = 79; 2.4%)	<i>M</i> = 0.14 ( <i>SD</i> = 0.44), <i>range</i> = 0-3 unique examples
<i>Reputation/Relation Harm</i>	catfish others “as” victim (e.g., <i>fake Tinder accounts/hookups</i> )
	commit fraud/libel (e.g., <i>harm credibility</i> ) “as” victim
	spam (public or specific others) or bad-contact/post “as” victim (e.g., <i>hurt relations</i> )
<i>Legal Implication</i>	commit illegal activities “by” victim (e.g., <i>child porn, terrorism, drug purchase</i> )
	photoshop to implicate (e.g., <i>drugs, child abuse, porn</i> )
	subscribe/sign-up “as” victim (e.g., <i>mags, products</i> ) to neglect (e.g., <i>nonpayment</i> )
<b>Outsourced Intrusion</b> ( <i>n</i> = 79; 2.4%)	<i>M</i> = 0.14 ( <i>SD</i> = 0.43), <i>range</i> = 0-4
<i>Intentional</i>	get others to hide-assist on messages to victim (e.g., <i>BCC or “silent” 3-way call</i> )
	hire/engage (e.g., <i>DarkWeb, friends</i> ) to harass/blackmail/catfish/gaslight victim
	public doxxing (e.g., <i>post contact info on porn sites, Reddit</i> ) to in-person or online (e.g., <i>for “lulz”ing</i> ) harass/blackmail/catfish/gaslight victim
<i>Unwitting</i>	flag/report posts
	program/use bots (e.g., <i>DoS, hashtag il/legal connections</i> )
	“swat” (e.g., <i>fake 9-1-1 calls, FBI reports</i> )
<b>Affiliate-Intrusion</b> ( <i>n</i> = 74; 2.3%)	<i>M</i> = 0.13 (0.39), <i>range</i> = 0-2 unique examples
<i>Self (perp) or via 3<sup>rd</sup> party</i>	constantly contact job (e.g., <i>colleague, boss, client</i> ) or school (e.g., <i>classmate, teacher</i> )
	contact/harass close others (e.g., <i>friend, family, new lover</i> )
<b>Physical Attack</b> ( <i>n</i> = 8; 0.2%)	<i>M</i> = 0.01 (0.13), <i>range</i> = 0-2 unique examples
<i>Object-Facilitated Proximity</i>	alarms or off-hours contacts to sleep-deprive or change medication schedule
	re/program remote/bot Homeware (e.g., <i>temperature, light, noise, appliance</i> )
<i>Proximate Object-Moderation</i>	forced environment torture (e.g., <i>adverse in-person settings of music/temp/light</i> )
	pull plug or adjust tech setting to medically incapacitate
	tool-throw or -hit (e.g., <i>phone at head</i> )
<i>Distal Tech-Mediation</i>	cancel necessary appointment/insurance
	change prescriptions or medical records
	contract (e.g., <i>DarkWeb</i> ) assault/hitman

*Notes.* Each category in the Behavior theme involved concepts grouped by dimensionalizing allied indicators. Category frequencies are unique examples per participant. <sup>a</sup>See text for accompanying goals of each. <sup>b</sup>Percent of all 12 categories. <sup>c</sup>Verbatim (i.e., quotations) from participants’ data.

**Outsourced intrusion.** Similar in overall frequency to recent categories was the emergence of intrusion that occurs via 3<sup>rd</sup> party facilitation. Notably, these “others” take two forms: Willing and Unwilling/witting. *Willing* accomplices, those who knowingly help abusers, are able to use social networks to recruit even more people who do not even know the victim to participate – increasing intrusion to exponential levels not possible without technology; such mass-perpetration may be done “for the lulz” or due to a common bond established with the perpetrator (e.g., fellow Red-piller). These

tactics serve to not only increase the amount and frequency of attacks (e.g., posted across multiple platforms in varying ways; [Milner, 2013](#)) a victim then receives, but also the intensity of them, as these types of accomplices increasingly direct attacks at their identity (e.g., the more people altercast a particular message to us, the more we believe it; [Goffman, 1959](#)).

TMA is also accomplished by those who (and “which”) may not know they are aiding in abuse; these are presumably *unwilling* (in that their intent is not to harm), but definitely *unwitting* accomplices. Indicators were coded here only when they clearly stated the involvement of a third-party; impersonation/framing (the previous category) was limited to those indicators focusing on the abuser’s direct practice of “setting up” the victim. In other words, framing may be considered the strategy used to bring about eventual outsourced intrusion. For example, “swatting” by reporting illegal activity (e.g., gun possession, terrorism threat) can result in actual private space being invaded, as doors are knocked down and guns pointed at the victim by police or FBI answering a “tip” anonymously submitted. Digital resources have also created an entirely new form of abuse heretofore impossible. Simply flagging or reporting a social media post can get the victim removed from a social network or needed online resource – whether conducted by a human manager or a bot. No human presence is needed to shut down someone’s business (e.g., Denial of Service attacks), get them arrested (e.g., hashtagging to illegal activities), or have their home repossessed or power shut off (e.g., cancelled accounts or failure to pay online bills) – all of these can now be done by a “bot” programmed to work on its own to react as it was lawfully and effectively intended to do.

**Affiliate-intrusion.** In some cases, tools and tactics typically reserved for victims are used *toward* members of the victims’ social network in an effort to simultaneously hurt the victim’s feelings, scare/threaten them, ruin their reputation, and/or isolate them from support. Whereas most sub-concepts within categories were distinct, this category contained concepts that could be applied to indicators in a possible either/or/both fashion. Intrusion to affiliates can be perpetrated either *by the abuser* or may be *outsourced* to third parties. Those not directly, by definition, an abuser’s victim may also be aware (or not) of the source of these harassments – an ignorance an attacker can then use to blackmail his/her victim further.

Notably, any practice used against a victim can have similar – or worse – effects when done to (or threatened toward) a victim’s loved one. Although this category was indicated least in this community (i.e., primarily non-victim) sample, these behaviors are actually a primary concern for many IPV victims ([Hardesty & Ganong, 2006](#); [Rasool, 2016](#)). The multiplied potential (i.e., hurt, scare, *and* control) of this category to victimize partners is troubling considering intrusion, in any form, is one of the easiest for technology to facilitate.

**Physical attack.** Finally, the least common report was that of attacks in which the perpetrator uses technology to inflict physical harm. Machine technologies *are* frequently used either as mediators of or tools to inflict physical injury on another ([Eckstein, 2016](#)). However, due to the overwhelming focus on cyberbullying in the literature and popular culture, when most people consider technology and abuse, they think more of psychological or emotional effects, as shown in this sample. But victims are certainly aware of technologies’ use as weapons. In fact, even this sample indicated three distinct concepts of physical attack via technology: Object-Facilitated Proximity, Proximate Object-Moderation, and Distal Tech-Mediation.

First, *object-facilitated proximity* behaviors are intended to substitute for an abusers’ physical presence. Alarms and iHomeware not only intrude, but when used invasively can also begin to physically torture (e.g., blaring music, adjusting temperatures or lighting, turning on appliances – all



can be done from an iPhone). The physiological effects of such behaviors can become just as intense as in-person physical assault ([Volcler, 2013](#)).

Next, physical TMA harm was indicated via *proximate object-moderation*, where technology is used by the perpetrator in-person to amplify or “improve” a physical behavior. Using the environment to torture has been well-established in prisoners of war, an experience paralleling IPV victimization ([Romero, 1985](#); [Walker, 2000](#)). Other in-person tactics include “pulling the plug” on medical equipment and throwing at or hitting with an appliance.

Finally, *distal tech-mediation* describes technology used to affect (mainly online) records or accounts that result in victims not receiving necessary medical attention. For example, abusers may call to cancel doctor’s appointments or health insurance on “behalf” of victims, log-in to change prescription medication requests (e.g., pharmacy apps) or medical records (e.g., online insulin monitoring for diabetics), and even hire/contract others (e.g., DarkWeb, burner phones) to physically assault a victim. The general population may recognize this category least, but technology not only facilitates physical harm, it does so in ways that may be even more effective, long-term, and far-reaching than could be done in-person.

## Interpretive Results

Axial analyses provided an additional depth-layer for understanding RQs. Several interrelationships and connections emerged from the indicators, 27 concepts, 15 categories, and two supra-themes previously discussed. Whereas I previously focused on description of these data, in subsequent interpretive results I focus on interrelationships among indicators/concepts/categories/themes *in terms of* what is known from existing research on digital and in-person victims. The most prominent of these theoretical findings center around: (a) thematic categories’ overlap, with a need to reconsider if/how IPV intent matters if TMA goals/tactics are indistinct (compared to traditional abuse forms), and (b) the importance of perspective-taking when viewing space and proximity as they apply to community- versus victim-samples.

**Overlapping intent/outcome, or new entity?** Concept saturation was apparent when all behavioral categories could be distinguished both by their strategy/method of implementation *and* their ultimate abuse intent (i.e., the perpetrator’s goal or victims’ immediate consequences). In this study, all strategies were distinguished by concepts where technology facilitated either (a) blatant victim-specific emotional or psychological abuse tactics, (b) structural or systemic means, or (c) tangible, physical strategies. Adding a further distinction/layer, each of these three TMA modalities contained indicators where the goal was to (i) control and/or (ii) attack (see [Figure 1](#)). For example, emotional control would be distinguished from emotional attack; this held for all three (emotion/psychological, structural/systemic, and tangible) concepts.

On the surface, it could appear that some categories were clearly control- *or* attack-focused, and in a traditional abuse context, that would likely be true. But where tools can be public and/or private, as with most social- and/or interactive-media, this line becomes blurred. For example, whereas verbal abuse may easily be classified as “attack” in a private dyad, that same language posted publicly on social media may serve as both emotional attack *and* a form of public shaming, which can also be used to control the victim (e.g., obey or else I’ll keep doing this). As such, the nature of coercive control (and the intrusion often used to facilitate it) *is* then theoretically distinct in mediated versus in-person IPV for a number of reasons.

Figure 1.

Common abuse strategies' intent as conceptualized in traditional vs. technology-mediated contexts

Perpetrator's Purpose	Victim's Experience of Strategy/Implementation		
<b>Distinct Intent/Goal</b> Traditional/non-mediated	<b>Emotional/Psychological Abuse</b>	<b>Structural/Systemic Abuse</b>	<b>Tangible/Physical Abuse</b>
<b>Control</b>	Emotional abuse (in-person) "You're a terrible mother" "You're so fat/ugly"	Economic abuse Deeds under abuser's name only Control finances/assign allowance	Physical restraint Lock in house Take the car
<b>Attack/Harm</b>	Verbal abuse (in-person) "You stupid bitch" "I fucking hate you"	False-report abuse Report custody violation to CPS Tell boss s/he does drugs (get fired)	Physical assault Hit, slap, beat
<b>Multi-Intent/Goal</b> Technology-mediated	<b>Emotional/Psychological/Structural/Systemic/Tangible/Physical Abuse?</b>		
<b>Control/Attack/Harm</b>	Verbal → Emotional abuse (on public forum) Post "Stupid bitch" on public wall/feed	Hack/Frame for wrong-doing Store child-porn on victim's computer	Program devices Re-set alarms, heat, light, home-lock setting

Note. Strategies with exemplar tactics are grouped as **traditionally understood in the violence literature** versus how **must re-conceptualize in light of technology-mediated advances**. All are based on both theoretical distinctions (e.g., coercive control models) and research on victims' versus perpetrators experiences. See main text for further explication/support.

First, there is evidence to suggest that TMA practices follow a Composition Law, with the whole effect being greater than the sum of its parts or intentions. To illustrate, further consider the overlap of the Media type and Behavior supra-themes in this study. Technology, and social media in particular, turns one form of violence into another, or more accurately, a chimera form. An abuser sending an "I know where you are" message now not only intrudes on a victims' life, but subsequently controls their physical and communicative practices as they adapt to that pervasive media intrusion ([Harris, 2016](#)).

Similarly, what was previously a definite verbal insult is now, due to the fact that others see it occurring (e.g., posted on Facebook wall), simultaneously also public shaming and intrusion, because it follows the victim when/wherever they are alerted or updated. Indeed, as noted by Harris ([2018](#)), even violent or sexual imagery "is not entirely distinct from violence itself" and so this power of a pic or video posted online to "elicit traumatic responses" not only for prior victims but even for those who have never personally experienced it (p. 114) makes an otherwise psychological-emotional practice into a physically experienced reality. In these cases, TMA facilitates the process of one abuse act compounding into something greater than the sum of its parts.

Finally, user perceptions of various tools used in interpersonal relationships and awareness of surveillance activities, hidden "smart" tools, and third-party (e.g., social network) recruitments – all will inform the way researchers and practitioners measure and apply TMA in real-world contexts. Therefore, TMA should continue to be explored as distinct from (or at least, substantially modified versions of) traditional IPV tactics.

**Whose perspective matters (for law, theory, and life)?** Not only does technology conflate traditionally abusive behaviors for victims, it also lends additional protections for perpetrators ([Dunlap, 2012](#)) to perpetrate longer and more intensely. Anonymity provided by technology hides perpetrators so that even abuse previously necessitating spatial proximity – like physical assault or locking doors to isolate/imprison – can now be done digitally and without risk when enacted by a third party, human (e.g., hired help/police) or not (e.g., bots, online systems).

For private or direct TMA, surveillance expertise or computer programming skills are no longer needed. Anyone can covertly monitor or cover their intrusive communications after the fact via apps or software already designed with simple user-interfacing. The more technologies created to protect users' privacy, the more abusers can harness those tools for private purposes.

Alternatively, for public TMA, the social aspect of media is the same mechanism that further protects perpetrators. Showing up at someone's door is difficult to explain to authorities. But when accused of a TMA intrusion that is otherwise clearly stalking, such as "liking every pic" and "constantly commenting" online, the abuser can point out the public nature of the feed *and* simply claim they were "liking" everyone's posts. The prior abuser-victim relationship makes the context of intrusion/assault threat (e.g., posting "happyslapping" videos) apparent only to the victim; to all others, it is ostensibly innocuous.

Another illustration of differing perceptual outcomes of TMA tactics was found in the prevalence of certain similarly-verbatim examples across the sample. The most common specifically mentioned response across all example indicators was shaming via social media ( $n = 135$ ; e.g., "posting nudes/sexting taken during their relationship"), followed by intrusion to the victim ( $n = 72$ ; e.g., "constantly harassing messaging"). These community-sampled results are revealing in that they show the most common understandings of digitally harmful behavior to involve violations of personal privacy and space. Particularly in a Western individualistic (and in the U.S., arguably sex-negative) culture, privacy is held to be a key value tied to people's identities ([Foucault, 1990](#); [Langlois & Slane, 2017](#)). It makes sense that being shamed (particularly, in sexual ways; [Salter, 2016](#)) would be salient for people not experiencing other types of violence; in other words, having their "face" needs violated is a primary threat to people's identities absent more self-concept-attacking methods typically experienced by IPV victims. This is not to say that victims do not also feel shamed by such practices, but that they may have (or not?) more pressing concerns (e.g., safety, sanity of self or others) than worrying about others' perceptions of them ([Hetling, Dunford, Lin, & Michaelis, 2018](#); [Rasool, 2016](#)).

The second-most-commonly occurring TMA practice, however, aligns more closely with recent victim-reports of violations experienced from abusers. Namely, those studies that have looked at victims' identification of TMA have found intrusive behaviors to be most salient in the form of persistent texting, harassing Facebook posts, and other indicators of surveillance or being "on the mind" of the abuser ([Woodlock, 2017](#)). Mentioned previously, intrusion – particularly when used in a pattern of coercive control – is one of the primary ways technology, more than traditional IPV methods, facilitates "interference that demands attention, diverts energy away from [other] priorities, and limits choices" through "unpredictable, pervasive, enduring, and often unexpected means" that result in "undesirable patterns of living" for the victim ([Wuest et al., 2003](#), p. 600). The proxemic facilitation of digital tools (whether psychological or physical) is such that once-distinct practices have now become overlapping.

## **Conclusions: What is the Agenda?**

This study offers a thorough grounding on which to base future studies of TMA, which is clearly something greater than the sum of its parts. As researchers and scholars continue to work with this concept and adapt to emerging technologies (perhaps changing even what was discovered here), it will be necessary to account for not just "practices" or particular uses of certain "media tools" but also to understand how they compound or magnify each other's effects – perhaps even beyond those intended by perpetrators.

Researchers must consider TMA not merely as an independent variable guiding studies of victims' coping and outcomes (although those are certainly needed), but rather examine the perceived (versus

actual?) effects of different tactics. For example, adding up scale scores (e.g., 7 or “experienced often”) for an item indicating physical tracking and another showing emotional attack is unlikely to simply equate to a score of 14. In this case, tracking via implanted bug may differ from the effects of being tracked online. And/or the emotional attack may be experienced as much worse than the tracking, and further, experienced differently when done via text message, in-person, and/or in an online public forum. Future instruments testing this construct must measure not just context (something IPV researchers have struggled to do for decades), but also the additive versus exponential impacts of those measurement items *across* contexts.

Obviously, policies should be informed by research on the topic. However, lawmakers already struggle to stay ahead of evolving technologies as they emerge; researchers are “running just to keep up” with technological advancements as well. As such, not only are lawmakers (and thus, enforcers) continually behind (e.g., privacy laws, what counts as “invasion”), but those policies that are enacted certainly do not rely on solid research based on victims’ (or even perpetrators’, for that matter) lived experiences. This is not to suggest that lawmakers should delay enacting protections for TMA victims; they are arguably behind on primary, secondary, *and* tertiary support for even in-person abuse, which researchers have studied for decades. Instead, it should be a prod to researchers to dive in now, *while* accounting for the complexities TMA presents (previously noted) in terms of measurement and outcome-conceptualization.

IPV has traditionally been understood as a “private” phenomenon occurring “behind closed doors” ([Overstreet & Quinn, 2013](#); [Straus, Gelles, & Steinmetz, 1980](#)). In an effort to bring these things out of hiding so that they may receive support, efforts to address this problem have crucially sought to publicize that the “personal is political.” Ironically, abusive practices that would typically have remained private (i.e., *to the victim only*) now serve as abuse precisely *because* they are public. TMA draws distance closer; makes the private public; and harnesses words, thoughts, and images to make absence into presence. But, arguably, technology has not succeeded in making the personal case of TMA into a political issue of concern for the public; policies, laws, and online-community-policing of perpetrators have not caught up to the technological practices of abusers. So far (and until scholars catch up), the potential of technology’s presence overwhelmingly benefits the perpetrators.

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<sup>i</sup> I continue to apply the term TMA here whenever it is clear that is what was studied, even if authors used a synonym. When distinctions between TMA types are necessary (e.g., studied in different ways), I note that with their specific terminology.

<sup>ii</sup> All examples provided were unique within each participant-case, with no duplicates counted.