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ORIGINAL ARTICLE

The Frequency and Perceived Impact of Engaging in In-Person and Cyber Unwanted Pursuit after Relationship Break-Up among College Men and Women

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Abstract The present study examined the extent of cyber and in-person unwanted pursuit behaviors (UPBs) reported by undergraduate men and women who pursued former partners and the pursuer's perceptions of the impact of their pursuit on their targets. Among a sample of 1167 undergraduates (66.8 % women; 95.4 % heterosexual) approximately 80 % of men and women reported engaging in UPBs toward former partners, with cyber pursuit endorsed by a subset of those who engaged in in-person UPBs. Despite few gender differences in overall pursuit, men endorsed engaging in a number of specific behaviors more than did women. Most UPBs did receive responses from targets, and pursuers generally did not perceive their behaviors as annoying, threatening, or frightening. Women perceived that targets had more negative responses to UPBs, particularly to threatening or violent pursuit, and men perceived more positive or neutral responses overall. Minor UPBs were associated with relationship reconciliation among women and men, whereas severe UPBs were associated with reconciliation among men only. Results suggest that pursuers

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likely underestimate the impact of their behaviors on targets and that pursuers' efforts, even severe and threatening, are often reinforced, particularly for men who pursue. Universities must be aware of UPBs and provide prevention programs specific to healthy relationship dissolution and pursuit. Provision of corrective information regarding the impact of severe and threatening pursuit may assist in reducing these behaviors.

Following the end of a romantic relationship, it is not uncommon for individuals to feel loss and to desire to contact or reconcile with their former partners. However, when repeated and persistent, these behaviors are often called unwanted pursuit behaviors (UPBs; Langhinrichsen-Rohling et al. 2000), which can vary in frequency and severity (e.g., from unwanted calls to violent acts), and occasionally meet legal definitions of stalking. Post-break-up pursuit, which comprises the majority of UPB cases (Tjaden and Thoennes 1998), has been found to be more severe than other contexts of pursuit, resulting in more problematic outcomes for targets (Kamphuis et al. 2003; Sheridan and Davies 2001). To date, recommendations have largely been for targets not to respond to their pursuers so that his/her efforts are not reinforced (Cupach and Spitzberg 2004).

However, there is limited research regarding the extent to which various acts do lead targets to respond, whether pursuers perceive these responses to be positive or negative, and whether pursuers are ultimately reinforced by relationship reconciliation. Prior research has also focused primarily on the targets of pursuit rather than the pursuers, which is problematic given that many of these acts may occur outside targets'

awareness. Finally, the existing literature has largely assessed in-person UPBs, to the exclusion of pursuit that may occur in the digital sphere (e.g., on social media, repeated text messages), which may be common among undergraduates (Burke et al. 2011). Therefore, in the present study we examine the frequency and overlap of cyber and in-person UPBs reported by undergraduate men and women who pursued former partners, the perceived responses to pursuit and perceptions of the impact of their pursuit behaviors on targets, and whether or not relationships were re-established following pursuit.

In-Person and Cyber Unwanted Pursuit Behaviors

The prevalence of in-person and cyber UPBs varies greatly by the definitions and samples that are studied, and obtaining accurate estimates is further complicated by a lack of consistency in operational definition and the lack of a "gold standard" measure for UPBs. First, studies have varied in whether they assessed stalking or UPBs. Whereas stalking definitions often require target fear or threat, UPBs occur on a continuum, including potentially normative romantic gestures (e.g., gifts, in-person conversations) up to severe acts (e.g., threat and harm), and, therefore, they may result in target reactions ranging from annoyance or frustration to fear. These definitional elements impact rates of victimization, particularly by gender. For example, in a national study, Baum et al. (2009) found similar pursuit acts were experienced among men and women; however, women were significantly more likely to report fear and were therefore more frequently defined as targets of stalking.

By contrast, studies that assess UPBs not requiring targets to report fear or threat have mostly found no significant overall gender differences in rates of pursuit (Davis et al. 2000; Dutton and Winstead 2006; Dye and Davis 2003; Langhinrichsen-Rohling et al. 2000; Tassy and Winstead 2014; Williams and Frieze 2005) or significant but small effects (Thompson et al. 2012). Whereas UPBs may not be illegal, they remain important to assess, given that even more minor behaviors may be frustrating for targets and may precede a more severe course of behavior over time (including stalking; Langhinrichsen-Rohling 2012). In the present study, the terms "target" and "pursuer" will be used rather than "perpetrator" or "victim" because UPBs may represent illegal behaviors (i.e., stalking) in some, but not all, cases. In the absence of clearer terms for the overall pattern of pursuit, however, these acts are referred to as "UPB perpetration."

We will also examine UPBs among undergraduates because prior research has found that UPBs among undergraduates differ from those among general population samples in that they occur more frequently and with greater gender similarity (Ravensberg and Miller 2003; Spitzberg et al. 2010).

Among undergraduates, rates of post-breakup in-person UPB perpetration have varied widely, with several studies clustering around rates between 35 and 45 % (Davis et al. 2000; Dye and Davis 2003; Lyndon et al. 2011; Thompson et al. 2012) and with others as high as 65–99 % (Dutton and Winstead 2006; Langhinrichsen-Rohling et al. 2000; Tassy and Winstead 2014; Williams and Frieze 2005). Just two known studies have assessed cyber UPB perpetration among undergraduate former partners, with rates between 24% (Chaulk and Jones 2011) and 51% (Lyndon et al. 2011).

Gender and UPBs: Theory and Prevalence

Based on gender socialization and feminist theories of violence, men—socialized to demonstrate toughness, authority, and dominance—are seen as more likely to use controlling behaviors, including stalking, against partners than are women, who are socialized to be passive and affiliative (Langhinrichsen-Rohling 2012; Stark 2007). Prototypical gender socialization scripts about dating often include men's pursuit of women that require persistence following multiple rejections before women consent to dating or other relationship behaviors (Dunlap et al. 2012; Lippman 2016). Whereas undergraduate men and women have not typically differed in overall rates of UPBs (Ravensberg and Miller 2003), gender socialization could theoretically lead men to engage in certain UPB acts more than women do. For example, summarizing existing literature on gender and UPBs, Langhinrichsen-Rohling (2012) asserted that sending gifts is often seen as a masculine behavior whereas property damage or gossiping, gathering information about the partner, or other relational forms of violence are seen as feminine behaviors. Nevertheless, support for gender differences in specific behaviors (Davis et al. 2000; Dutton and Winstead 2006; Langhinrichsen-Rohling et al. 2000; Williams and Frieze 2005) has been mixed. In addition, the only known study that has attempted to examine gender differences in specific cyber pursuit acts among undergraduates found that women compared to men engaged in more monitoring behaviors (i.e., excessive email and phone contact, checking email or call history, monitoring Facebook page; Burke et al. 2011). In contrast, men reported greater use of some surveillance methods (i.e., GPS, web cam, hidden camera), were more likely to post inappropriate photos, and more commonly used passwords to check up on their partners. However, their study was not limited to post break-up or to former partner UPBs.

Beyond gender similarities in specific acts, gender socialization may also shape perceptions of abuse because male pursuers are viewed by targets as more threatening than are female pursuers (Nguyen et al. 2012) and men report that pursuit is less frightening than do women (Dunlap et al. 2012; Langhinrichsen-

Rohling 2012). Thus, women's pursuit of former partners may occur in a broader context in which women are viewed as less dangerous, or their behaviors seen as less frightening or even "laughable" to male targets (Langhinrichsen-Rohling 2012), which may affect pursuers' or targets' perceptions of UPBs.

Break-Up Initiator Status and UPBs

In addition to gender, researchers have theorized that break-up initiator status will predict UPBs, such that individuals who were recipients of the break-up will be less likely to have desired for the relationship to end and thus will be more likely to pursue (Langhinrichsen-Rohling et al. 2000). Several studies have examined the impact of break-up initiator status on UPBs, with many finding that recipients of break-up were more likely to pursue their former partners than were those who initiated the break-up (Davis et al. 2000; De Smet et al. 2011; Dye and Davis 2003). However, when other factors were included, these relationships were occasionally indirect (e.g., associated with UPBs through increased anger/jealousy; Davis et al. 2000; Dye and Davis 2003), and some studies have found no relationship between initiator status and UPB perpetration (Cupach et al. 2011; Spitzberg et al. 2014; Tassy and Winstead 2014; Wisternoff 2008). Research is also mixed with regard to gender differences in break-up initiator status. Whereas prior literature indicates that women are more likely to initiate break-ups than are men (Sprecher 1994), two studies assessing UPBs have found no significant gender differences in break-up initiator status (Langhinrichsen-Rohling et al. 2000; Wisternoff 2008). Among studies in which break-up initiator status and UPBs were associated, gender did not moderated these relationships (Davis et al. 2000; De Smet et al. 2015; Dye and Davis 2003).

In-Person and Cyber UPBs: Distinct Phenomena?

Whereas research over the past 20 years has emphasized in-person UPBs, there is growing recognition of the need to examine how technology impacts the ability to pursue. However, researchers have disagreed as to whether in-person UPBs and cyber UPBs are theoretically different dimensions of the same unwanted pursuit behavior (which are either electronically mediated or not; Sheridan and Grant 2007) or if these behaviors are distinct forms of unwanted pursuit (i.e., are utilized differentially or by different pursuers; Nobles et al. 2014). Among the few studies assessing both in-person and cyber UPBs, there is mixed evidence for their concurrence, with some studies finding strong overlap between cyber and in-person UPB victimization experiences and similar psychological outcomes for targets of each form (Sheridan and Grant 2007; Strawhun et al. 2013) and with others reporting only small-to-moderate overlap among cyber and in-person UPBs and their effects (Nobles et al. 2014; Spitzberg and Hoobler 2002). Just one known study has assessed the overlap between in-person and cyber UPB perpetration among undergraduate ex-partner pursuers (Lyndon et al. 2011), finding that whereas these behaviors did co-occur among about half of those who pursued ex-partners, many did perform either in-person or cyber pursuit independent of one another. Unfortunately, Lyndon et al. (2011) did not specify whether this pursuit was against the same or different former partners, making it unclear whether these pursuit forms were used concurrently to pursue one target. Additional research is needed to determine the rates and co-occurrence of cyber and in-person UPBs among undergraduate former partners.

Perceptions and Responses to UPBs

Researchers have postulated that pursuit generally operates under an operant conditioning model, such that receiving any response (negative or positive) to pursuit attempts will result in increased UPBs (i.e., positive reinforcement; Cupach and Spitzberg 2004). However, there are few estimates of the frequency with which targets respond to pursuers. In a national telephone survey of college women, Fisher et al. (1999) found that 43 % reported avoiding or ignoring the pursuer, although this sample was not limited to intimate partners. In addition, it is unclear how pursuers perceive the responses they receive (e.g., positive or negative responses). Some research does suggest that pursuers rate targets' responses to UPBs as more positive than do targets (Sinclair and Frieze 2005; Thompson et al. 2012). The researchers have called this *motivated cognition*, that is, pursuers likely view targets' responses to be positive because this is consistent with their goal of being accepted by the target, and this perception has been shown to be particularly true among men (Sinclair and Frieze 2005). However, these assessments have summarized across acts and not examined perceptions of particular behaviors.

Consistent with gender socialization theories, research has found that, as targets, women are more likely to report fear and threat in response to in-person UPBs (Nguyen et al. 2012). Among pursuers, however, the results are mixed. One study found that, whereas there were no gender differences in perceptions of minor UPBs, men who pursued were more likely to perceive that their violent or severe UPBs resulted in fear or harm than were women who pursued (Thompson et al. 2012). By contrast, Davis et al. (2000) found that men were more likely than were women to perceive their UPBs as noble and romantic, consistent with media portrayals of male persistence as romantic (Lippman 2016). Understanding pursuers' perceptions of target responses to UPBs may be important in determining their potentially reinforcing attributes, including

whether pursuers recognize their behavior as threatening or fear-inducing, how perceived responses from targets vary by type of pursuit (e.g., cyber vs. in-person), or even across behaviors (e.g., following a target compared to threatening a target).

Finally, research is needed to determine whether pursuit ultimately leads to relationship reconciliation. Although not explicitly tested in prior research, it is plausible that individuals who initiate break-ups would be more likely to reconcile because their partners were perhaps less desiring of the dissolution. Consistent with this reasoning, two studies have found that those who initiate break-ups are more likely to have higher self-efficacy in their pursuit, that is, they more strongly believe that they will achieve their goal of reconciliation (Cupach et al. 2011; Spitzberg et al. 2014).

The Present Study

In sum, just one known existing study concurrently examined in-person and cyber UPBs among undergraduates following relationship break-up (Lyndon et al. 2011); unfortunately, this study assessed lifetime post-breakup UPBs, making it difficult to ascertain whether the behaviors occurred with the same or different partners, and it did not examine these relationships separately by gender. Further, although some research has examined pursuers' perceptions of the impact of in-person UPBs on targets, additional research is needed to better understand whether or not pursuers perceive that they are receiving positive responses from targets and whether pursuit is associated with increased rates of relationship reconciliation. There are two primary aims of the present study.

The first aim was to descriptively examine in-person and cyber UPBs among undergraduates following relationship break-ups, including their frequency, gender similarities/differences in these acts, and concurrence. In line with this first goal, we proposed three hypotheses. (a) Minor UPBs will be more common than severe UPBs (Hypothesis 1a); however, women and men will report similar rates of overall UPB perpetration (Prediction 1b). Given mixed literature there is no specific hypothesis regarding gender differences in in-person UPBs (Question 1c); however, based on prior research, men will report more surveillance methods of cyber UPBs and women more excessive contact cyber UPBs (Hypothesis 1d). (b) Break-up initiator status will be associated with UPB perpetration, such that individuals who were the recipients of break-up will be more likely to pursue than will individuals whose partners initiated the break-up or whose break-ups were mutual (Hypothesis 2a). There will be no gender differences in break-up initiator status (Prediction 2b). (c) In-person and cyber UPBs will be moderately associated, and women and men will evidence similar relationships among UPBs (Prediction 3).

The second aim of the present study is to examine (a) pursuers' perceptions of the impact of in-person and cyber UPBs on targets (i.e., extent to which they are annoying, threatening or cause fear for targets), (b) describe responses pursuers receive to UPB perpetration (i.e., whether targets respond, whether responses are seen as positive or negative), and (c) whether pursuers are reinforced behaviorally for their pursuit with relationship reconciliation. Specifically, we propose that consistent with prior research, men will perceive their pursuit to be more annoying, threatening, and frightening than will women (Hypothesis 4). Given a dearth of prior research, no a priori hypotheses are ventured regarding responses to pursuit (Question 5a), pursuers' perceptions of those response (Question 5b), and extent to which individuals will reconcile post-UPBs (Question 6a). It is expected, however, that break-up initiators will be more likely to reconcile than will those who were recipients of break-ups (Hypothesis 6b).

Method

Participants

Participants who were 18 years or older and who had been in romantic relationships that had ended in the past 3 years (N = 1184) were recruited through the psychology research participant pool in introductory psychology classes. Among the 1184 participants, two participants were transgendered and were excluded given an insufficient number to examine group differences. In addition, 15 participants were found to be missing data on one or more measures of interest. Results were run with and without these participants, with similar results obtained; therefore, they were excluded for consistency across analyses. Thus the final sample comprised 1167 participants (779, 66.8 %, women).

The majority of participants were Non-Hispanic Caucasian (88.5 %, n = 1033), 3.5 % (n = 41) indicated that they were African-American, 2.6 % (n = 30) Latino/Hispanic, 1.5 % (n = 17) Asian/Pacific Islander, 2.7 % (n = 31) bi/multiracial, .8 % (n = 9) selected "Other," and .5 % (n = 6) declined to respond. The majority of participants identified as heterosexual (95.4 %, n = 1113) and were in their first (56.4 %, n = 658) or second (24.1 %, n = 293) year of college. With regard to income, 47.2 % (n = 552) reported that their parents' yearly income was greater than $75,000. Nearly half (47.2 %, n = 551) reported that they were currently in relationships, with the majority categorized as serious dating relationships (72.4 %, n = 398) or casual dating relationships (21.1 %, n = 116).

Participants were instructed to answer questions about just one romantic relationship that ended within the past 3 years; if multiple relationships had ended, they were asked to select the one that was "most significant" to them. With regard to the

former relationships reported on in the present survey, relationships had ended an average of 16.17 months (*SD* = 11.59, range = .5–60) prior to the study, with an average relationship length of 17.34 months (*SD* = 14.04, range = .5–144). Of the 388 male-identified participants in the present study, 93.8 % (*n* = 364) reported that their former partner was female, and 6.2 % (*n* = 24) reported that their former partner was male. Of the 779 female-identified participants, 97.3 % (*n* = 758) reported that their former partner was male, and 2.7 % (*n* = 21) reported that their former partner was female. With regard to break-up initiator status, 26.6 % (*n* = 311) reported that they initiated the break-up, 20.4 % (*n* = 238) reported that their partner initiated the break-up, and 53.9 % (*n* = 618) reported that the break-up was mutual.

Measures

"In-Person" Unwanted Pursuit

The Unwanted Pursuit Behavior Inventory (UPBI- Offender; Langhinrichsen-Rohling and Palarea 2006) is a 26-item measure used to assess presence, frequency, and impact of unwanted pursuit behavior perpetration that ranges from Minor (items 1–13) to Severe (items 14–26). Participants are asked how often they conducted "any of the following unsolicited contact behaviors" toward the ex-partner after their break-up (Minor sample item: "Wait outside of his/her home, work or school"; Severe sample item: "Cause harm to someone close to him/her or to his/her pet"), with responses reported on a 5-point scale of 0 (*never*), 1 (*once*), 2 (*twice*), 3 (*3–9 times*), and 4 (*10 or more times*). For consistency across the UPBI and cyber pursuit items, and to reduce skew, these items were recoded to be 0 (*never*), 1 (*once*), or 2 (*two or more times*). Across two college samples, the total score has achieved good internal consistency reliability (αs = .81, .88; Langhinrichsen-Rohling et al. 2000).

For the present study, three items that overlapped significantly with the Controlling Partners Inventory-Self (Burke et al. 2011) were eliminated, all of which load onto the minor pursuit subscale of the UPBI (i.e., "Leave him/her phone messages or hang-up calls," "Engage him/her in a phone conversation," and "Talk with him/her in an Internet chat room"). Confirmatory Factor Analysis (CFA) and follow-up Exploratory Factor Analysis (EFA) were performed. (These results are available in Online Supplement 1.) The original structure was largely replicated, with the exception that one item ("follow him/her," originally a Severe item) was found to cross-load and was removed. The Severe subscale included 12 items (α = .96); the Minor subscale, 10 items (α = .82). Consistent with the definition of UPBs as "repeated" acts, only participants who endorsed engaging in at least one act (of the in-person or cyber UPBs) 2 or more times, or 2 acts once or more will be considered as having engaged in UPBs.

Cyber Unwanted Pursuit

Cyber unwanted pursuit was measured using the Controlling Partners Inventory-Self (CPI-S; Burke et al. 2011). This measure includes 18 items about whether participants have performed a variety of controlling or harassing behaviors via electronic means on a 5-point scale from 0 (*never*), 1 (*once*), 2 (*twice*), 3 (*3 times*), to 4 (*4 or more times*) since the break-up with their former romantic partner. Again, we recoded these items to 0 (*never*), 1 (*once*), or 2 (*two or more times*). Burke et al. (2011) presented results of a principal components factor analysis in which they obtained four factors. The subscales included (a) photos/camera/Spyware to monitor or post embarrassing photos of partner (8 items), (b) excessive communication (i.e., calls/texts; 4 items), (c) threatening calls, texts and emails (3 items), and (d) checking on partner by using his/her password, checking cell calls or email histories (3 items). An example item is: "[Did you] Use web cam to monitor his/her activities?"

Overall, the CPI full scale showed good internal consistency in the original study (α = .90; subscale alphas not reported), with Guttman split-half and Spearman–Brown coefficients of .85 and .75, respectively. Using the present sample, CFA and follow-up EFA were performed. (These results are available in Online Supplement 2.) In brief, two subscales were found, with three items removed due to cross-loading and/or poor interrelation with other items (i.e., "Send threatening texts to him/her," "Sent excessive numbers of emails to him/her," and "Check his/her social network page to monitor him/her"). The first factor largely combined the remaining GPS/Surveillance and Threatening items (termed Severe from here forward; 10 items, α = .94), and the second factor combined the Communication and Checking factors (termed Minor from here forward; 5 items, α = .79). As with the in-person pursuit behaviors, only participants who endorsed engaging in at least one act (across the cyber and in-person UPBs) 2 or more times, or 2 acts once or more will be considered as having engaged in UPBs.

Follow-up in-Person and Cyber Unwanted Pursuit Questions

For each in-person and cyber pursuit item endorsed, participants are asked, "Did he/she reply to the contact?" (yes/no), and, if they did reply, "Was his/her response positive or negative? (i.e., if positive, they liked it, if negative, they did not like it)." These items were included for each item of the UPBI and CPI. Following these questions, participants were shown each of the items they had endorsed on the measure (UPBI or CPI) and asked to reply, when thinking about their contact with the former partner whom they reported, "How annoying do you think this contact was to your former partner?," "How threatening do you think this contact was to your former partner?," and "How much do you think this contact caused

your former partner to be fearful for his/her safety or well-being?," with response options from 0 to 100 ("Not at all" to "Extremely"). These questions were asked about UPBI behaviors and CPI behaviors separately. Participants were asked who initiated the break-up ("Who decided to end the relationship?"), with response options of "Only me," "Mutual," and "Only my partner." Finally, participants were asked if they reconciled with their partner: "Following this contact, did you ever get back together with this partner (i.e., did you date again)?" (Yes/No).

Procedure

Participants were recruited from the psychology research participant pool at a medium-sized U.S. Midwestern university. Their participation was anonymous. Following informed consent, participants completed the study survey, titled "[University] Students' Break-Up Experiences" online through the Qualtrics data collection system and received partial course credit for their participation. Following participation, participants were directed to a page displaying the debriefing form, which included a list of counseling centers along with their phone numbers. Participants completed demographic and relationship characteristics first, after which they completed the UPBI and its follow-up questions, followed by the CPI with the same follow-up questions.

Results

Frequency, Gender, and Concurrence of UPBs

Frequency of Minor and Severe UPBs (Hypothesis 1a)

Limiting the definition to engaging in at least one act 2 or more times, or 2 acts once or more (i.e., "repeated" pursuit), 81.0 % ($n = 945$) of the sample reported engaging in UPBs following the break-up of a romantic relationship, with no significant difference between men (81.2 %) and women (80.9 %), $\chi^2(1) = .02$, $p = .898$, $\varphi = -.004$. The remaining results will be limited to this subsample. As shown in Table 1, overall, 98.5 % of participants who engaged in UPBs endorsed some type of minor in-person pursuit. Consistent with Hypothesis 1a, that minor UPBs would be more common than severe UPBs, severe in-person pursuit items were endorsed by a much lower percent of those who engaged in UPBs (14.1 %). Cyber pursuit was less commonly endorsed than was in-person pursuit, with 42.9 % of those who had pursued their former partners reporting some form of minor cyber pursuit. Also consistent with Hypothesis 1a, severe cyber pursuit items were less commonly endorsed (11 %) than the minor pursuit items.

Gender Comparisons in Overall UPB Perpetration (Prediction 1b)

Prediction 1b was that men and women would report similar rates of overall UPB perpetration. This prediction was supported, with no gender differences found at the subscale level for minor and severe in-person pursuit or severe cyber pursuit (see Table 1). With regard to gender similarities/differences in specific in-person and cyber UPB acts, women (47.5 %) were significantly more likely to endorse minor cyber pursuit than were men (33.7 %; $\varphi = .132$).

Gender Comparisons of in-Person UPB Perpetration (Question 1c)

In order to examine exploratory research Question 1c (whether in-person UPBs would be similarly or differentially endorsed by women and women), Chi-square tests assessed gender differences in overall endorsement of each item (see Table 1). Among the 22 in-person UPBs, there were significant gender differences on 11 items, 10 of which were items more commonly endorsed by men. Men were significantly more likely to report five severe in-person UPBs (i.e., threatening with a weapon, stealing, releasing harmful information, causing harm to someone close to target or his/her pet, kidnapping) and five minor items (i.e., unexpectedly visit at school/work, unexpectedly visit at home, give items in person, wait outside of home/work/school, and engage in in-person conversation). The only in-person UPB endorsed more frequently by women was asking friends for information about their former partners (a minor in-person item). Thus, whereas about half of the items were similarly endorsed among men and women, gender differences in in-person UPBs that did exist were more common among men than women.

Gender Comparisons of Cyber UPB Perpetration (Hypothesis 1d)

Finally, Hypothesis 1d, that men would report more surveillance methods of cyber UPBs and women more minor contact UPBs, was supported (see Table 2). As noted previously, women reported more overall minor cyber UPBs, and, at the item-level, women also were more likely to report sending excessive numbers of texts to their former partners (a minor cyber pursuit item). Also consistent with Hypothesis 1d, men were more likely than were women to endorse 5 of 10 severe surveillance cyber pursuit items, including using web cam, hidden camera, GPS and social media check-ins to monitor a former partner's activities, sending threatening emails, and threatening to post/send inappropriate photos.

Table 1 In-person unwanted pursuit perpetration items and gender differences in their frequency

In-person UPB perpetration	Total frequency % (n = 945)	Men's frequency (n = 315)	Women's frequency (n = 630)	$\chi^2(1)$	Φ
Severe subscale					
23. Cause harm to someone close to him/her or to his/her pet	2.3 % (22)	4.1 % (13)	1.4 % (9)	**6.73, p = .010**	−.084
25. Kidnap him/her or hold him/her against his/her will	2.0 % (19)	3.8 % (12)	1.1 % (7)	**7.76, p = .005**	−.091
18. Threaten to harm/kill someone close to him/'her or his/her pet	2.5 % (24)	3.8 % (12)	1.9 % (12)	3.08, p = .079	−.057
19. Threaten him/her with a weapon	2.0 % (19)	3.8 % (12)	1.1 % (7)	**7.76, p = .005**	−.091
26. Force him/her to engage in sexual contact after the break-up	2.4 % (23)	3.8 % (12)	1.7 % (11)	3.77, p = .052	−.063
17. Threaten to harm/kill him/her	2.8 % (26)	3.8 % (12)	2.2 % (14)	1.98, p = .160	−.046
24. Physically injure him/her	3.1 % (29)	3.8 % (12)	2.7 % (17)	.87, p = .351	−.030
22. Cause damage to his/her property (e.g., home or car)	4.2 % (40)	5.1 % (16)	3.8 % (24)	.84, p = .361	−.030
21. Steal items from him/her	3.1 % (29)	5.1 % (16)	2.1 % (13)	**6.42, p = .011**	−.082
16. Threaten to release information that would be harmful to him/her	5.8 % (55)	5.7 % (18)	5.9 % (37)	.01, p = .922	.003
20. Release information that was harmful to him/her	6.1 % (58)	8.6 % (27)	4.9 % (31)	**4.86, p = .028**	−.072
15. Make vague or implied threats to him/her	7.2 % (68)	7.6 % (24)	7.0 % (44)	.13, p = .722	−.012
Endorsed any severe in-person UPBs (12 items)	14.1 % (133)	14.9 % (47)	13.7 % (86)	.28, p = .620	−.017
Minor subscale					
9. Show up in places where you thought he/she might be	34.0 % (321)	30.5 % (96)	35.7 % (225)	2.57, p = .109	.052
10. Go out of your way to run into him/her "unexpectedly"	30.1 % (662)	27.0 % (85)	31.4 % (198)	1.98, p = .160	.046
12. Unexpectedly visit him/her at school/work/some other public place	16.6 % (157)	23.2 % (73)	13.3 % (84)	**14.68, p < .001**	−.125
11. Unexpectedly visit him/her at his/her home	14.0 % (132)	21.0 % (66)	10.5 % (66)	**19.18, p < .001**	−.142
6. Give him/her items (e.g., letters/gifts) in person	34.7 % (328)	43.5 % (137)	30.3 % (191)	**16.08, p < .001**	−.130
13. Wait outside of his/her home/work/school	10.1 % (95)	14.0 % (44)	8.1 % (51)	**8.01, p = .005**	−.092
8. Contact his/her family/friends without his/her permission	25.3 % (239)	22.2 % (70)	26.8 % (169)	2.36, p = .125	.050
7. Ask friends for information about him/her	77.0 % (728)	72.7 % (229)	79.2 % (499)	**5.03, p = .025**	.073
2. Send/Leave unwanted letters/gifts	18.3 % (173)	20.6 % (65)	17.1 % (108)	1.71, p = .191	−.043
5. Engage him/her in a conversation in person.	84.4 % (798)	87.9 % (277)	82.7 % (521)	**4.39, p = .036**	−.068
Endorsed any minor in-person UPBs (10 items)	98.5 % (931)	98.4 % (310)	98.6 % (621)	.04, p = .849	.006

Bolded entries are significant at p <.05

Break-Up Initiator Status, Gender, and UPB Perpetration (Hypotheses 2a & Prediction 2b)

Consistent with Hypothesis 2a, individuals who initiated the breakup were less likely to pursue their former partners (72.3 % pursued) than were individuals who were the recipients of the break-up (88.7 %) or individuals whose break-ups were mutual (82.4 %), $\chi^2(2) = 24.92$, $p < .001$, Cramér's V = .146, with no significant difference between recipients and those with mutual break-ups. However, unexpectedly, those who initiated the break-up were significantly more likely to have engaged in severe pursuit than were those for whom the break-up was mutual, with those whose partner initiated the break-up intermediate to both groups (see Table 3a). There was no significant difference in the medium of pursuit (i.e., in-person, cyber or both) by break-up initiator status (see Table 3a). Finally, consistent with Prediction 2b, there was no significant gender difference in break-up initiator status, $\chi2(2) = 2.21$, $p = .331$, Cramér's V = .044.

Concurrence of in-Person and Cyber UPBs and Gender (Prediction 3)

Prediction 3, that in-person and cyber UPBs would be moderately associated among men and women, was assessed through examination of frequencies by severity (i.e., minor and severe) and medium (i.e., in-person and cyber), with Chi-squares to contrast by gender differences. As shown in Table 3b, of those participants who endorsed 2 or more acts, the majority of men (79.7 %) and women (80.5 %) endorsed minor forms of pursuit only. Severe pursuit was almost universally accompanied by other minor forms of pursuit, with combinations across medium (i.e., in-person and cyber formats) common. It was very uncommon for men or women to use severe forms of pursuit in the absence of any minor forms (0 % of men, 2, .4 % of women). Overall, there were no gender differences by the severity of violence (i.e., minor, severe only, or severe with minor abuse), supporting Prediction 3.

Table 2 Cyber unwanted pursuit perpetration and gender differences in their frequency

Cyber UPB perpetration	Total frequency %	Men's frequency (n = 315)	Women's frequency (n = 630)	$\chi^2(1)$	Φ
Severe subscale					
16. Use web cam to monitor his/her activities	1.6 % (15)	3.2 % (10)	.8 % (5)	**7.62, p = .006**	−.090
17. Use hidden camera to monitor his/her activities	1.6 % (15)	2.9 % (9)	1.0 % (6)	**4.88, p = .027**	−.072
18. Use spyware to monitor his/her activities	1.7 % (16)	2.9 % (9)	1.1 % (7)	3.85, p = .050	−.064
14. Post or send inappropriate photos of him/her	2.3 % (22)	3.5 % (11)	1.7 % (11)	2.82, p = .093	−.055
4. Send threatening emails to him/her	2.1 % (20)	3.5 % (11)	1.4 % (9)	**4.32, p = .038**	−.068
13. Threaten to post or send inappropriate photos of him/her	2.8 % (26)	5.1 % (16)	1.6 % (10)	**9.57, p = .002**	**−.101**
15. Use GPS or social media check-ins to monitor his/her location	2.8 % (26)	4.4 % (14)	1.9 % (12)	**5.06, p = .024**	**−.073**
11. Check his/her cell phone bill	2.6 % (25)	3.5 % (11)	2.2 % (14)	1.32, p = .252	−.037
5. Make threatening cell calls to him/her	3.5 % (33)	4.8 % (15)	2.9 % (18)	2.26, p = .133	−.049
12. Make embarrassing, insulting, or threatening facebook posts about him/her	6.6 % (62)	6.7 % (21)	6.5 % (41)	.01, p = .926	−.003
Endorsed any severe cyber pursuit (10 items)	11.0 % (104)	10.8 % (34)	11.1 % (70)	.02, p = .883	.005
Minor subscale					
2. Check his/her cell phone call history	17.8 % (168)	14.6 % (46)	19.4 % (122)	3.26, p = .071	.059
8. Make excessive number of cell calls to him/her	17.0 % (161)	14.0 % (44)	18.6 % (117)	3.15, p = .076	.058
3. Use his/her password to check up on him/her	12.5 % (118)	9.8 % (31)	13.8 % (87)	3.03, p = .082	.057
9. Send excessive number of texts to him/her	29.8 % (282)	23.5 % (74)	33.0 % (208)	**9.10, p = .003**	**.098**
1. Check his/her sent/received email history	10.9 % (103)	10.2 % (32)	11.3 % (71)	.27, p = .605	.017
Endorsed any minor cyber pursuit (5 items)	42.9 % (405)	33.7 % (106)	47.5 % (299)	**16.35, p < .001**	**.132**

Bolded entries are significant at p < .05

However, inconsistent with Prediction 3, there were gender differences with regard to medium of abuse (see Table 3b), with men reporting more in-person pursuit only (65.1 %) compared to women (50.0 %) and women more likely to report the combination of in-person and cyber pursuit (48.9 %) than were men (34.3 %). Performing cyber pursuit in the absence of in-person pursuit occurred very infrequently among men (1.6 %) and women (1.1 %). In sum, whereas Prediction 3 was supported with regard to severity, it was not supported with regard to medium because men were more likely to report in-person only and women were more likely to perform cyber UPBs. Importantly, both severe and cyber UPBs appeared to be subsets of overall pursuit behavior, infrequently occurring outside of minor in-person UPBs.

Perceived Impact, Responses, and Reconciliation

Gender and Perceptions of UPB Perpetration (Hypothesis 4)

In addition to rates of in-person and cyber UPBs, one goal of the present study was to examine the perceived impact of UPBs. We anticipated that men would perceive their UPBs as more annoying, threatening and fear-inducing than would women (Hypothesis 4). Results of t-tests comparing these ratings by gender and linear regressions (controlling for extent of

UPBs) are shown in Table 4a for in-person UPBs and in Table 4b for cyber UPBs. Overall, ratings of annoyance, threat, and fear were very low. At the bivariate level, there were no gender differences in the extent to which men and women thought that their in-person and cyber UPBs were annoying to their former partners, or the extent to which they thought their in-person UPBs were fear-inducing to their former partners. However, men were more likely to perceive that their in-person and cyber pursuit was more threatening, and their cyber pursuit more fear-inducing, than were women (Table 4b).

Given that it is possible that the severity of unwanted pursuit contributes to perceptions of pursuit, six linear regressions were performed, with gender and severity of pursuit behaviors entered as predictors. As shown in Table 4a and b, perpetrating more in-person and cyber UPBs was associated with greater perceptions that these acts were annoying, threatening, and fear-inducing for targets. When controlling for extent of UPBs, gender was no longer associated with perceptions that in-person UPBs were threatening (see Table 4a), however, in the presence of total cyber pursuit, men remained significantly more likely to perceive that cyber pursuit was threatening and fear-inducing than were women (see Table 4b). Thus, Hypothesis 4 was only partially supported; whereas men did perceive their cyber UPBs as more threatening and fear-inducing than did women, there were no gender differences with regard to perceptions of in-person UPBs.

Table 3 Relationships among pursuit forms among pursuers who endorsed 2+ acts ($n = 945$) (a) by break-up initiator and (b) by gender

Severity	(a) By break-up initiator			
	Pursuer	Mutual	Partner	χ^2 (4)
Only MINOR forms	**73.3 % (165)**	**83.7 % (426)**	**79.1 % (167)**	12.39, $p = .015$
Only I-P minor	52.4 % (118)	52.8 % (269)	45.0 % (95)	Cramér's V = .081
Only cyber minor	.9 % (2)	1.0 % (5)	.5 % (1)	
Only I-P and cyber minor	20.0 % (45)	29.9 % (152)	33.6 % (71)	
Only SEVERE forms	**.4 % (1)**	**0**	**.5 % (1)**	
Only cyber severe	.4 % (1)	0	0	
Only I-P severe	0	0	0	
Only I-P severe and cyber severe	0	0	.5 % (1)	
Severe with minor forms	**26.2 % (59)**	**16.2 % (83)**	**20.4 % (43)**	
I-P minor and I-P severe only	6.2 % (14)	3.1 % (16)	2.4 % (5)	
Cyber minor and cyber severe only	0	.4 % (2)	.5 % (1)	
All four forms	7.6 % (17)	3.3 % (17)	3.8 % (8)	
Other minor/severe combinations	12.4 % (28)	9.4 % (48)	13.7 % (29)	
Medium (in-person only, cyber only, in-person and cyber)				
I-P only	58.7 % (132)	56.4 % (287)	47.9 % (101)	7.38, $p = .117$,
Cyber only	1.3 % (3)	1.0 % (5)	.5 % (1)	Cramér's V = .062
Combination I-P/cyber	40.0 % (90)	42.6 % (217)	51.7 % (109)	
Severity	(b) By gender			
	Men	Women	χ^2 (2)	
Only MINOR forms	**79.7 % (251)**	**80.5 % (507)**	1.15, $p = .563$, $\varphi = .035$	
Only I-P minor	59.7 % (188)	46.7 % (294)		
Only cyber minor	.6 % (2)	1.0 % (6)		
Only both minor	19.4 % (61)	32.9 % (207)		
Only SEVERE forms	**0 %**	**.4 % (2)**		
Only cyber severe	0	.2 % (1)		
Only I-P severe	0	0		
Only both severe	0	.2 % (1)		
Severe with minor forms	**20.3 % (64)**	**19.2 % (121)**		
I-P minor and I-P severe only	4.4 % (14)	3.3 % (21)		
Cyber minor and cyber severe only	1.0 % (3)	0		
All four forms	4.1 % (13)	4.6 % (29)		
Medium (in-person only, cyber only, in-person and cyber)				
I-P only	65.1 % (205)	50.0 % (315)	19.35, $p < .001$, $\varphi = .143$	
Cyber only	.6 % (2)	1.1 % (7)		
Combination I-P/cyber	34.3 % (108)	48.9 % (308)		

Bolded entries are significant at p < .05

Responses to UPBs (Question 5a)

Given the limited literature examining responses to in-person and cyber UPBs received by pursuers, one exploratory research question was whether targets responded to UPBs (Question 5a). Respondents were asked, for each item, whether or not they received a response from the former partner, and, if so, whether this response was positive, negative or neutral. As shown in Table 5, the majority of men and women reported receiving some response to their pursuit behaviors, although it appears that severe UPBs received somewhat less

response from targets than did minor UPBs. Men and women received similar rates of response to minor and severe in-person UPBs and cyber severe UPBs, however, women (66.4 %) received significantly more responses to minor cyber UPBs than did men (54.2 %; $\varphi = .113$). Overall, many of the items most likely to receive responses were similar among men and women (see Table 5a). The majority of these items were minor in-person UPBs, perhaps because the target is likely present to provide a response. For example, 92.4 % of men and 94.4 % of women received responses to in-person conversation. Minor cyber contact items that involved

Table 4 Gender and perceptions of (a) In-person and (b) Cyber unwanted pursuit behaviors

	Men M (SD)	Women M (SD)	t	Model statistics	Gender t (partial corr)	Total score t (partial corr)
(a) In-person pursuit						
Annoying	21.68 (24.99)	22.07 (26.91)	−.21	$F_{(2, 930)} = 18.51$, $p < .001$, $R^2 = .038$	.67 (.022)	6.08 (.196)***
Threatening	5.91 (14.58)	3.78 (13.50)	2.21*	$F_{(2, 930)} = 44.04$, $p < .001$, $R^2 = .085$	−1.61 (−.053)	9.10 (.286)***
Fearful	4.10 (12.96)	2.85 (11.90)	1.47	$F_{(2, 930)} = 66.78$, $p < .001$, $R^2 = .126$	−.71 (−.023)	11.45 (.351)***
(b) Cyber pursuit						
Annoying	34.58 (31.22)	36.50 (31.30)	−.56	$F_{(2, 425)} = 4.29$, $p = .014$, $R^2 = .020$	.90 (.044)	2.87 (.138)**
Threatening	9.05 (18.31)	4.53 (13.35)	2.78**	$F_{(2, 425)} = 38.30$, $p < .001$, $R^2 = .153$	−2.01 (−.097)*	8.22 (.371)***
Fearful	7.30 (18.30)	2.76 (10.80)	3.14**	$F_{(2, 425)} = 61.08$, $p < .001$, $R^2 = .223$	−2.27 (−.110)*	10.48 (.453)***

The sample sizes are 310 men and 623 women for in-person pursuit; 113 men and 315 women for cyber pursuit. The regression results control for total pursuit

*$p < .05$. **$p < .01$. ***$p < .001$

excessive contact (i.e., texts and calls) were also very likely to receive responses. Items least likely to receive responses included mostly severe UPBs (see Table 5b). Some of these items included surveillance methods (e.g., hidden camera, GPS, spyware), which may not have received responses because the target may not have been aware of their occurrence.

Perceptions of Target Responses (Question 5b)

With regard to the perceived valence of targets' responses to UPBs (Question 5b), with the exception of minor cyber pursuit, gender differences at the subscale level were found (see Table 6). Across the forms of abuse, women reported perceiving more negative responses to their pursuit than did men, particularly for severe in-person and cyber-UPBs, whereas men reported perceiving more positive (severe cyber pursuit) or neutral responses (severe in-person pursuit) than did women. With regard to specific acts men and women received the most positive responses to generally similar acts (see Table 6a), which were predominantly minor in-person UPBs (e.g., unexpected visits, in-person conversation, gifts). However, women and men did differ with regard to responses for which they were most likely to believe that they received negative responses (see Table 6b). Whereas women most commonly reported negative responses to severe in-person pursuit behaviors (e.g., threatening or injuring their former partners), men reported receiving the majority of their negative responses to a combination of minor and severe cyber UPBs (e.g., making embarrassing, insulting or threatening Facebook posts, excessive calls and texts, checking call and email histories).

Relationship Reconciliation and UPBs (Question 6a) and Relationship with Break-up Initiator Status (Hypothesis 6b)

Finally, in order to assess whether gender or extent of pursuit were associated with relationship reconciliation (Question 6a),

bivariate statistics were computed (see Table 7). Overall, of those who engaged in UPBs, women (26.2 %) were significantly more likely to get back together than were men (19.7 %) with the partners they had pursued following their pursuit, $\chi2$ (1) = 4.87, $p = .027$, $\varphi = .072$. Surprisingly, whereas minor in-person and cyber pursuit were associated with reconciliation among both men and women, severe in-person and severe cyber pursuit were associated with reconciliation among men only. Thus, reconciliation following various forms of pursuit varied by gender. Finally, whereas it was hypothesized that break-up initiators would be more likely to reconcile than would break-up recipients (Hypothesis 6b), this hypothesis was not supported, $\chi2(2) = 2.56$, $p = .278$, Cramér's V = .052.

Discussion

Overall, the present study aimed to better understand the extent of and overlap between post break-up in-person and cyber pursuit behaviors among undergraduate men and women, as well as perceptions of and responses to UPB perpetration. Many results were consistent with hypotheses and prior research. Consistent with prior research (Dutton and Winstead 2006; Langhinrichsen-Rohling et al. 2000), 80 % of men and women met the definition for repeated pursuit (i.e., 2 or more acts) toward their former partners at some point following the end of their romantic relationships, 20 % of whom endorsed severe in-person or cyber UPBs. Results also supported the theory that cyber UPBs are a subset or special circumstance within a general pattern of pursuit (Nobles et al. 2014), in that cyber UPBs were less common than were in-person UPBs, and 98 % of those who engaged in cyber UPBs had also engaged in in-person UPBs.

With regard to gender, there was mixed evidence to suggest that there are gender differences in the rates of perpetration. Consistent with gender socialization processes and coercive control theories (Stark 2007; Langhinrichsen-Rohling 2012),

Table 5 Gender differences and items (a) most and (b) least likely to receive responses from targets among men and women

	Men % (n)	Women % (n)	χ²(1)				
In-person minor	68.3 % (780)	70.8 % (617)	1.96, p = .162, φ = .025				
In-person severe	44.6 % (83)	53.1 % (120)	2.60, p = .107, φ = .084				
Cyber minor	54.2 % (123)	66.4 % (203)	**10.14, p = .002, φ = .113**				
Cyber severe	38.6 % (49)	49.6 % (66)	2.78, p = .095, φ = .111				

	Subscale	Men		Women	
		Rank	%	Rank	%
(a) Most likely to receive responses					
In-person conversation	I-P minor	1	92.4 %	1	94.4 %
Give him/her items (e.g., letters, gifts) in person	I-P minor	2	83.1 %	4	77.0 %
Send excessive numbers of texts to him/her	Cyber minor	3	77.0 %	2	90.9 %
Unexpectedly visit him/her at home	I-P minor	4	63.6 %	5	72.7 %
Unexpectedly visit him/her at work, school or some other public place	I-P minor	5	63.0 %	7	65.5 %
Make excessive number of calls to him/her	Cyber minor	6(T)	61.4 %	8	64.7 %
Wait outside of home/work/school	I-P minor	6(T)	61.4 %	3	85.5 %
Threaten to release information harmful to him/her	I-P severe	8	61.1 %	*23*	*51.4 %*
Go out of your way to run into him/her "unexpectedly"	I-P minor	9	58.8 %	*14*	*59.6 %*
Threaten to harm or kill someone close to him/her or his/her pet	I-P severe	10	58.3 %	*24*	*50.0 %*
Make embarrassing, insulting or threatening Facebook posts	Cyber severe	*16*	*47.6 %[a]*	6	65.9 %
Post or send inappropriate photos of him/her	Cyber severe	*28*	*36.4 %*	9	63.6 %
Contact his/her friends or family without his/her permission	I-P minor	*17*	*47.1 %*	10	60.9 %
(b) Least likely to receive responses					
Use spyware to monitor his/her activities	Cyber severe	37	22.2 %	34 T	28.6 %
Send threatening emails	Cyber severe	36	27.3 %	31 T	33.3 %
Use GPS or social media check-ins to monitor location	Cyber severe	35	28.6 %	37	25.0 %
Use his/her password to check up on him/her	Cyber minor	34	29.0 %	30	29.0 %
Use web cam to monitor his/her activities	Cyber severe	33	30.0 %	*13*	*60.0 %*
Damage his/her property	I-P severe	32	31.5 %	*21*	*54.2 %*
Threaten him/her with a weapon	I-P severe	29(T)	33.3 %	*15*	*58.8 %*
Force him/her to engage in sexual contact after the break-up	I-P severe	29(T)	33.3 %	34 T	28.6 %
Injure him/her	I-P severe	29(T)	33.3 %	*27*	*45.5 %*
Check his/her sent/received email history	Cyber minor	*27*	*37.5 %*	36	28.2 %
Threaten to post or send inappropriate photos of him/her	Cyber severe	*15*	*50.0 %*	33	30.0 %
Use hidden camera to monitor his/her activities	Cyber severe	*20*	*44.4 %*	31 T	33.3 %
Kidnap him/her	I-P severe	*24*	*41.7 %*	29	42.9 %

Bolded entries are significant at p < .05

[a] Italicized entries indicate that whereas that item is included in the table because it was among the most (or least) likely responses for one gender, it was not among the most (or least) for the other gender

men were more likely to engage in more severe in-person and cyber UPB items than were women, and some of the gender differences found in minor UPBs also overlapped with those hypothesized by Langhinrichsen-Rohling (2012) as "gendered" behaviors (e.g., unexpected visits or giving gifts). However, there were no significant gender differences in some behaviors typically seen as more masculine (e.g., forced sex, physical violence), and despite several gender differences in particular items, there were few overall gender differences in UPB perpetration among men and women at the subscale level. Therefore, it is important not to make gender-stereotyped assumptions about UPB perpetration.

Finally, the relationship between break-up initiator status and UPBs was somewhat unexpected. Whereas break-up recipients were more likely to pursue than were those who initiated the break-up, consistent with prior research (De Smet et al. 2015; Dye and Davis 2003), those who initiated the break-up were the group most likely to have engaged in severe UPBs.

The present study also explored pursuers' perceptions of their behaviors, responses they received, and relationship reconciliation following pursuit. Overall, pursuers in the present study reported very low rates of perceived fear, threat, and annoyance among their targets in response to the UPBs.

Table 6 Items most likely to receive (a) positive, (b) negative, and neutral responses by gender

	Positive	Negative	Neutral					
	% (n)	% (n)	% (n)	$\chi^2(2)$				
In-person minor				**12.74, p = .002, φ = .075**				
Men	69.6 % (543)	12.6 % (98)	17.8 % (139)					
Women	66.2 % (990)	18.3 % (273)	15.5 % (232)					
In-person severe				**37.18, p < .001, φ = .428**				
Men	26.5 % (22)	30.1 % (25)	43.4 % (36)					
Women	10.8 % (13)	73.3 % (88)	15.8 % (19)					
Cyber minor				1.15, p = .563, φ = .047				
Men	26.0 % (32)	53.7 % (66)	20.3 % (25)					
Women	27.4 % (110)	56.5 % (227)	16.2 % (65)					
Cyber severe				**12.50, p = .002, φ = .329**				
Men	36.7 % (18)	38.8 % (19)	24.5 % (12)					
Women	10.6 % (7)	65.2 % (43)	24.2 % (16)					

	Subscale	Men Rank	%	Women Rank	%
(a) Most likely to receive positive responses					
Unexpectedly visit him/her at home	I-P minor	1	(85.7 %)	8	(56.3 %)
Unexpectedly visit him/her at work, school or some other public place	I-P minor	2	(82.6 %)	4	(70.9 %)
In-person conversation	I-P minor	3	(81.3 %)	1	(82.7 %)
Give him/her items (e.g., letters, gifts) in person	I-P minor	4	(74.3 %)	2	(82.3 %)
Wait outside of home/work/school	I-P minor	5	(74.1 %)	3	(72.7 %)
Go out of your way to run into him/her "unexpectedly"	I-P minor	6	(68.0 %)	6	(57.6 %)
Send threatening emails	Cyber severe	7	(66.7 %)	*14*	*(33.3 %)*
Send/leave unwanted gifts	I-P minor	8	(58.3 %)	5	(61.5 %)
Show up in places you thought he/she might be	I-P minor	9	(56.9 %)	9	(55.0 %)
Contact his/her friends or family without his/her permission	I-P minor	*13*	*(48.5 %)*[a]	7	(57.3 %)
Ask friends for information about him/her	I-P minor	14	(45.2 %)	10	(43.9 %)
(b) Most likely to receive negative responses					
Make embarrassing, insulting, or threatening facebook posts	Cyber severe	1	(70.0 %)	8	(74.1 %)
Make excessive number of calls to him/her	Cyber minor	2	(63.0 %)	*19*	*(56.0 %)*
Release information harmful to him/her	I-P severe	3	(60.0 %)	9	(72.2 %)
Send excessive number of texts to him/her	Cyber minor	4	(56.1 %)	*23*	*(48.1 %)*
Make threatening calls to him/her	Cyber severe	5(T)	(50.0 %)	10	(70.0 %)
Use hidden camera to monitor him/her	Cyber severe	5(T)	(50.0 %)	*21*	*(50.0 %)*
Check his/her call history	Cyber minor	7(T)	(44.4 %)	5	(79.7 %)
Use his/her password to check up on him/her	Cyber minor	7(T)	(44.4 %)	*15*	*(64.7 %)*
Check his/her sent/received email history	Cyber minor	9	(41.7 %)	*20*	*(55.0 %)*
Damage his/her property	I-P severe	10(T)	(40.0 %)	7	(76.9 %)
Check his/her phone bill	Cyber severe	10(T)	(40.0 %)	*11*	*(68.7 %)*
Threaten him/her with a weapon	I-P severe	*18 (T)*	*(25.0 %)*	1	(100 %)
Injure him/her	I-P severe	*18(T)*	*(25.0 %)*	2	(90 %)
Threaten to harm/kill someone close to him/her or his/her pet	I-P severe	*25*	*(14.3 %)*	3	(83.3 %)
Make vague or implied threats	I-P severe	*14*	*(30.0 %)*	4	(80.0 %)
Threaten to release harmful information	I-P severe	*17*	*(27.3 %)*	6	(78.9 %)

Bolded entries are significant at p < .05

[a] Italicized entries indicate that whereas that item is included in the table because it was among the most (or least) likely responses for one gender, it was not among the most (or least) for the other gender

Further, after controlling for frequency of pursuit, there were few gender differences in these perceived impacts, with the exception that men reported slightly greater perceived threat and fear from targets in response to cyber pursuit than did

Table 7 Whether dated again based on perpetration of unwanted pursuit behaviors (UPBs) and gender

UPBs	Men			Women		
	Dated again (n = 62) M(SD)	Did not date again (n = 253) M(SD)	t	Dated again (n = 165) M(SD)	Did not date again (n = 465) M(SD)	t
In-person minor	7.97 (5.64)	5.79 (4.25)	**−3.38, p = .001**	6.93 (4.14)	5.30 (3.72)	**−4.67, p < .001**
In-person severe	2.53 (6.84)	.61 (3.09)	**−3.31, p = .001**	.62 (1.88)	.51 (2.59)	−.51, p = .607
Cyber minor	1.87 (2.84)	.97 (2.06)	**−2.84, p = .005**	2.42 (2.75)	1.23 (2.07)	**−5.80, p < .001**
Cyber severe	1.65 (5.13)	.42 (2.21)	**−2.86, p = .004**	.44 (1.37)	.29 (1.78)	−1.01, p = .311

Bolded entries are significant at p < .05

women. Further, despite recommendations in the literature for targets not to respond to UPBs (e.g., Cupach and Spitzberg 2004), the majority of UPBs reported by men and women in the present study did receive responses. However, there was some evidence to suggest that men and women were reinforced differently for their actions. First, women reported perceiving significantly more negative responses to UPBs, particularly severe UPBs, than did men, who perceived responses from targets as more positive or neutral. The present study was also the first known study to examine relationship reconciliation following pursuit, finding that women were somewhat more likely to date their former partners again after pursuit. However, whereas only minor pursuit was associated with reconciliation among women, both minor and severe pursuit were associated with relationship reconciliation among men. Being the initiator of the break-up was not associated with relationship reconciliation.

Given that 80 % of the sample reported that they engaged in 2+ pursuit behaviors following break-ups, it is clear that some extent of pursuit is normative in the process of a break-up among undergraduates. Specifically, two items (engage him/her in a conversation in person; ask friends for information about him/her) were endorsed by the vast majority of those who engaged in pursuit (84 % and 77 %, respectively), and may not themselves represent problematic behavior when performed independently of other behaviors. As suggested by Langhinrichsen-Rohling (2012), inclusion of less severe behaviors such as these may also lead to seemingly greater parity in cyber UPB perpetration among men and women than actually exists. Therefore, further research is needed to attend to issues related to the measurement of UPBs and how they are defined to capture acts that most accurately represent unwanted pursuit behaviors. It was also notable that cyber UPBs were less frequent than were in-person UPBs, particularly given the ubiquitous nature of technology use among undergraduates. Former partners may be quite accessible in the dormitories, classes, or on campus to pursue in that matter, not requiring technological contact.

The relationships between gender and UPBs in the present study were also quite interesting, particularly that there were

no gender differences in overall endorsement of severe UPBs and that women reported more minor cyber UPBs (and therefore more overall cyber UPBs) than did men. With regard to cyber UPBs, the present study found support for Burke et al.'s (2011) prior research finding that women engaged in more minor cyber UPBs, particularly, sending excessive text messages. Also consistent with Burke et al., men did endorse higher rates of several of the severe cyber UPBs, including using web cam, hidden camera, spyware, and GPS/social media to surveil partners, threatening to post or send inappropriate photos, and sending threatening emails. Burke et al. (2011, pp. 1166-1167) theorize that this may be due to "men having greater familiarity with the technical workings of cameras and webcams," although this, itself, seems to be an oversimplified gender stereotype. From a gender socialization standpoint, it is possible that men feel the backing of social power or entitlement to former partners to engage in severe surveillance behaviors, or that depictions of surveillance in popular media have encouraged their use (Lippman 2016).

In addition to a lack of overall gender differences in severe pursuit at the subscale level, it was notable that 20 % of those who engaged in UPBs did engage in severe UPBs. These forms of violence can have severe consequences for targets and are difficult to combat, with a growing literature, for example, documenting the challenges of criminalizing "revenge porn," or posting pornographic images without consent online (Citron and Franks 2014). Future research is needed to understand predictors of minor and severe UPBs because they may be differentially motivated; that is, whereas minor UPBs may be directed toward reconciliation, it is possible that severe UPBs are instead motivated by desires to harm or seek revenge upon former partners. Quantitative research examining various predictors of these pursuit behaviors, as well as qualitative research inquiring about motives for pursuit, are needed to empirically address these questions.

The present study was novel in its examination of both pursuers' perceptions of the impact of UPBs on targets, the responses they received, and whether or not they reconciled, all of which may impact further pursuit behaviors. First, it is notable that both men and women who pursued perceived that

their behaviors were minimally annoying, threatening, and fear-inducing to targets. Specifically, on scales of 0–100, means for annoyance were around 22 for in-person UPBs and 35 for cyber UPBs. Rates were even lower for perceptions of threat and fear among the UPBs (<10). Thompson et al. (2012) found that men, particularly those who engaged in more violent acts, were more likely to report that their UPBs were threatening or frightening to targets than were women. However, in the present study, there were no significant gender differences in perceptions of in-person UPBs when controlling for frequency of pursuit, as well as just a small difference in cyber UPBs (such that men were somewhat more likely to perceive these acts as threatening or frightening). It is likely that no gender differences were found due to the floor effect (i.e., low ratings of fear, threat, and annoyance among both men and women). Further, based on prior research examining targets' perceptions of UPBs (Langhinrichsen-Rohling et al. 2000), it is likely that the pursuers in the present study are underestimating the extent to which these behaviors negatively impact their targets.

Importantly, the present study suggests that men and women may be differentially reinforced for engagement in UPBs. First, whereas overall response rates to pursuit generally did not differ by gender (with the exception that women received more responses to minor cyber pursuit), men reported more neutral or even positive responses to UPBs than did women. At the item level, women generally perceived each UPB as generating a more negative response from their targets than did men. Further, whereas minor pursuit was associated with relationship reconciliation among both men and women, severe UPBs were also associated with reconciliation for men. Thus, men generally seem to be able to execute even severe pursuit with some positive responses from targets and, ultimately, reconciliation.

These results are somewhat counterintuitive becuase prior research has found that women (as targets) report more fear and threat than do men (Nguyen et al. 2012), and therefore, it may be expected that men as pursuers would receive more negative responses. However, these results are also consistent with prior studies finding that men perceive that their UPBs are viewed as more noble or romantic (Davis et al. 2000), consistent with portrayals of men in popular media who persist in attempts to reconcile with partners (Lippman 2016). Although speculative, some of the negative reactions women received, particularly from severe in-person UPBs (e.g., threats and injury), which deviate significantly from traditional female gender roles, may be sanctioned more by negative responses from men. Conversely, it is possible that either men feel more empowered to respond due to less fear or threat resulting from these behaviors, or that women reconcile with their pursuers due to greater fear or threat. An additional possibility is that women could be more perceptive of the negative reactions they receive or are more honest about the valence of

their actions in the context of a survey. Research with dyads of pursuers and targets may help to clarify this issue.

Some results of the present study were somewhat unexpected, such as the results with regard to break-up initiator status. As expected based on prior studies (Davis et al. 2000; Dye and Davis 2003), individuals who were recipients of the break-up were more likely to engage in some form of pursuit than were those who initiated the break-up themselves or those for whom the break-up was mutual, perhaps because initiators were more likely to desire to rekindle the relationship. However, perhaps unexpectedly, those who initiated the break-up were *more* likely to engage in *severe* pursuit than were those for whom the break-up was mutual, with those who were recipients of the break-up intermediate to the two groups. Although seemingly counterintuitive, prior researchers have found that individuals who initiated break-ups reported high levels of anger and jealousy (Spitzberg and Cupach 2003), and others have postulated that individuals may initiate break-ups for a variety of reasons, including perceived mistreatment or betrayal (e.g., infidelity; Davis et al. 2000; Wisternoff 2008). Thus, severe UPBs may be associated with anger or jealousy (i.e., retaliation motives) among these individuals. Future research is needed to understand these potential pathways (i.e., retaliation and revenge) because they may relate to severity of pursuit. Another possibility is that undergraduates may tend to have "Velcro"-type relationships (Davis et al. 2000), in which they have a pattern of breaking up and reconciling repeatedly. Future studies should examine the frequency with which individuals engage in these behaviors because unclear relationship dissolution may be associated with increased pursuit.

Limitations and Future Directions

Although the current study contributes to existing literature on UPBs by utilizing a large sample, assessing UPBs within the context of just one relationship, and concurrently examining cyber and in-person UPBs, it is not without its limitations. As we noted, the study is retrospective, making it possible for recall bias to interfere. In order to hopefully limit recall bias, the study was limited to those with a break-up within the past 3 years, with a mean of 16 months since the break-up. In addition, due to the retrospective nature of the data, causal implications cannot be made. Prospective studies are needed to determine whether responses to UPBs are associated with increased subsequent UPBs and reconciliation. With regard to the sample, results of the present study are limited in their generalizability due to homogeneity with regard to race and social class; results must be replicated in more diverse samples, as well as young adult non-undergraduate samples. These results should also be examined separately among same-gender couples; though sample sizes in the present study did not permit those analyses.

Importantly, given the high rates of minor UPBs, research is needed to differentiate a problematic relationship termination process and UPBs from communication behaviors that occur within a normative or healthy termination. Qualitative or mixed-methods research may be needed to determine what healthy or normative aspects should be excluded to best characterize UPBs in future studies. This research should also attend to the particular wording of the items; for example, terms such as "excessive" are subjective in nature and may impact what is counted as pursuit. In addition, whereas recommendations have been that targets ignore or avoid responding to UPBs (e.g., Cupach and Spitzberg 2004), so as to not reinforce the pursuer, prospective research examining the course of behaviors is needed to determine what victim responses actually reinforce UPBs or, conversely, which behaviors may lead to a cessation of UPBs. Ideally, research with dyads should be performed in order to elucidate these factors.

Practice Implications

The results of our study have potential practice and policy implications. Clearly, UPBs are common on college campuses, and therefore, clinicians and administrators on campuses must be aware of, and develop approaches to respond to, UPBs. First, given that pursuers did not perceive their behaviors to be very annoying, threatening or frightening, prevention programs using a social norms approach may be helpful. Many social norms approaches focus on assessing the norms of the group and providing corrective feedback regarding their acceptance; it is likely that whereas some minor pursuit is deemed normative, more severe approaches are not approved by others (e.g., threats, surveillance), and these norms can be made salient within group interventions (see Berkowitz 2010, for a review). Although existing intimate partner violence (IPV) prevention programs often incorporate norms and other information regarding healthy dating relationships (e.g., Safe Dates; Foshee et al. 1996; Bringing in the Bystander (BITB); Moynihan et al. 2010), it is important to consider the addition of information related to healthy relationship termination and post-relationship behaviors among adolescents and young adults, as well as the de-normalization of persistent pursuit behaviors popularized by the media as romantic (Lippman 2016).

The present study also suggests implications for bystander intervention. First, the majority of the UPBs were in-person, and therefore likely occurring in public spheres where others are present and could intervene. In addition, the most common severe cyber behavior (making embarrassing, insulting, or threatening Facebook posts) may be observable to others, and therefore could be intervened upon by others as well. The frequency of opportunities to engage in these behaviors should be empirically examined, and approaches that could be used to intervene in these behaviors could be provided in the context of existing bystander intervention programs.

Further, a clearer understanding of whether responding to UPBs is associated with more persistent UPB victimization would help to clarify whether targets should follow the traditional advice to avoid responding to the pursuer (e.g., Cupach and Spitzberg 2004). In the present study, the majority of UPBs did receive some perceived response. However, before discouraging all responses to UPBs, research is needed to clarify whether responding to pursuit is unilaterally problematic. For example, in a qualitative study, targets reported that they believed having a direct or assertive conversation with the pursuer was most effective in decreasing UPB victimization, rather than using avoidance methods (Dutton and Winstead 2011). It is possible that, given that pursuers in the present study did not believe that their behaviors were annoying, threatening or frightening, feedback from the target may help some pursuers to understand the impact of their behavior and potentially cease their pursuit.

Conclusions

The present study found that break-ups often do not signify a complete end to a relationship among undergraduates, with most contacting their former partners following dissolution. Campuses must be aware of, and plan for, ways to intervene and respond to this behavior and provide prevention programs that address UPBs. Cyber UPBs are performed by a significant subset of those who engage in pursuit and should be investigated further because it is possible that these behaviors represent a more severe or extensive course of behavior, or result in different impacts on targets (Nobles et al. 2014). Importantly, whereas few overall gender differences in UPB perpetration were found in the present study, this does not necessarily indicate that the *impact* of these behaviors will be the same. Based on the present results, it would appear that men perceive even severe or threatening behaviors as receiving neutral or positive responses. Further, men appear to be reinforced for severe and threatening pursuit through increased relationship reconciliation. Learning that threats could result in the desired end is particularly problematic in young adult relationships because it may be more likely that these individuals will continue to use UPBs in later relationships. It is therefore incumbent on researchers and practitioners to work toward an emphasis on decreasing UPBs from an early age and encourage healthy relationship dissolution and separation.

Review Board of the university in which it was conducted prior to data collection. Informed consent was presented prior to the study, and participants were provided options for partial course credit in the place of research participation (i.e., brief article reviews), if desired. Debriefing materials were provided at the end of the study. No animals were involved in the present study.

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