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Meet Them Where They Scroll: A Meta-Analytic Review of Teen and Young Adult Dating Violence Prevention Programs

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ABSTRACT

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The public is often surprised by the high prevalence of relationship violence. With more than 50% of adults experiencing some form of physical or psychological violence in their intimate relationships during their lifetime, IPV is a public health crisis that particularly affects marginalized communities (Breiding et al., 2015; Johns et al., 2019, 2020; Stockman et al., 2015). The variable results of perpetrator and victim treatments make prevention particularly important if it is effective (Anderson & Van Ee, 2018; Babcock et al., 2004; Cheng et al., 2021; Karakurt et al., 2019; Maguire, 2018; Stith, Rosen, et al., 2004; Stover et al., 2009). Thus, researchers are interested in developing empirically tested programs that reduce IPV (Jennings et al., 2017; Niolon et al., 2017).

The current meta-analysis builds on the existing literature by analyzing the broad effectiveness of IPV primary prevention in adolescence and young adulthood while specifically analyzing the moderator of novel intervention methods (e.g., online, mobile app, or mailed interventions). Additional moderators included age; gender; at-risk populations; intervention type, whether focused on IPV or relationship health; setting, whether school or community; and length of the intervention.

Looking at the included studies as a whole, the aggregate of the intervention outcomes indicates that there is a small but significant positive effect from primary prevention programs ($d = 0.175$, $k = 47$, $p < 0.001$). As broad categories, attitudes ($d = 0.166$, $k = 29$, $p < 0.001$), knowledge ($d = 0.212$, $k = 12$, $p < 0.001$), and behaviors ($d = 0.160$, $k = 36$, $p < 0.001$) had small, significant effect sizes. Taken together, IPV primary prevention programs were able to successfully address their targeted outcomes in these domains. There was not a significant difference between facilitated and self-directed prevention programs ($d_F = 0.177$, $k = 39$, $p < 0.001$; $d_{SD} = 0.160$, $k = 8$, $p = 0.132$; $Q = 0.023$, $p = 0.878$). These findings have important implications for IPV prevention strategies and interventions. Although the effect size is described as small, even small reductions in IPV can have a significant impact on behavior that impacts millions of people and is costly economically and socially. Future research should further explore self-directed programs and extend our work to LGBTQ+ populations.

Keywords: intimate partner violence, primary prevention, meta-analysis

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Meet Them Where They Scroll: A Meta-Analytic Review of Teen and Young Adult Dating Violence Prevention Programs

If the adage holds true that the best offense is a good defense, then the most productive way to address intimate partner violence (IPV) is to prevent it from occurring. Addressing IPV is likely to begin with an understanding of its scope. The public is often surprised by the high prevalence of relationship violence. With more than 50% of adults experiencing some form of physical or psychological violence in their intimate relationships during their lifetime, IPV is a public health crisis that particularly affects marginalized communities (Breiding et al., 2015; Johns et al., 2019, 2020; Stockman et al., 2015). One in four American women and almost one in 10 American men experience physical or sexual violence and/or stalking (Smith et al., 2018). Each of the individuals in this study reported that IPV meaningfully impacted their lives. And these data did not include the more than 80 million people who experience psychological aggression that can also harm mental and physical health (Kelly, 2004; Smith et al., 2018).

Because of the painful impact of IPV, scholars and clinicians have sought to prevent it from occurring. These preventative interventions have varied by their modality (e.g., in-person instruction vs. self-directed programs), their targeted population (e.g., high-risk vs. general population, gender or sexual orientation), length, age of participants, and the primary purpose of the intervention (e.g., designed to reduce IPV or designed to increase relationship health). With the recent events of COVID-19, there is increased awareness of the need for treatments and prevention that are accessible. This variability leads to gaps in our understanding of what components are included in prevention and which are effective. In the present meta-analysis, I will address these gaps for primary IPV prevention effectiveness in teens and young adults. I aim to specifically understand whether novel methods of disseminating IPV interventions are equally

effective as a moderator. In addition, I will assess success by target population, intervention length, and program aims.

What is Intimate Partner Violence? A Historical Review

The term IPV can mean different things to different people. Lay conceptualizations may conjure images of "battered womxn" as portrayed in media and anti-violence campaigns. Too many may have their own understanding from personal experience with IPV. Because a lack of clarity about how IPV is operationalized can create confusion, researchers have attempted to reach a consensus on what constitutes IPV. The Center for Disease Control in the United States developed the following definition of IPV to guide research: "Intimate partner violence includes physical violence, sexual violence, stalking and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner or ongoing sexual partner)" (Breiding et al., 2015, p. 11). This definition, while providing a uniform and discrete framework for IPV, covers a broad range of behaviors that can occur at different developmental phases of the relationship.

But do all manifestations of IPV produce similar outcomes? Are the relationship dynamics the same in all relationships that include IPV? And why is it important to consider such a wide range of behaviors in intimate relationships (e.g., physical, psychological, and sexual aggression)? Questions like these prompted research into how to best classify distinct types of IPV. The initial classification began in the 1990s because of discrepancies in reports about the gender distribution of IPV perpetrators (Johnson, 1995). Two terms called "patriarchal terrorism" and "common couple violence" described the initial separation between types of violence (Johnson, 1995). Data from large-sample surveys indicate that IPV is split in gender between men and women. Quantitative and qualitative data from the courts, domestic violence

shelters, and police reports indicate that men perpetrate violence against women at significantly higher rates (Johnson, 1995). Common couple violence is described as the tendency for some couples to experience occasional outbursts that result in violence that is usually less severe (e.g., escalating tension that leads to pushing or slapping). This contrasts with patriarchal terrorism, which is mostly perpetrated by men. Patriarchal terrorism is characterized by more frequent violence on average and is embedded in a broader context of power and control within the relationship. Over time, the classification system adapted and was expanded to include Coercive Controlling Violence, Violent Resistance, Situational Couple Violence, and Separation-Instigated Violence (Kelly & Johnson, 2008). Each of these is explained in more detail below.

Coercive Controlling Violence

Coercive controlling violence is what people usually think of when they hear the term domestic violence. It is the type of IPV commonly reported on the news and displayed on television. The label for this form of violence evolved from patriarchal terrorism to intimate partner terrorism to coercive controlling violence, which is the term currently used in the IPV literature. This violence is not exclusively perpetrated by men, so the term patriarchal is inaccurate, and the term "terrorism" can be sensationalized and impractical for settings like court (Kelly & Johnson, 2008). The words "coercive control" are more descriptive of the phenomenon's defining features of exerting power over the partner and controlling much of their life: violence is only a part of this sub-type of IPV (Kelly & Johnson, 2008).

Understanding coercive controlling violence is really about understanding the dynamics of power and control in these abusive relationships. The Duluth Model was created to provide education to men who batter to reduce the likelihood of continued perpetration (Pence et al., 1993). As a part of its development, qualitative interviews were used to develop a Power and

Control “Wheel” that illuminates the most common tactics used to generate and maintain power and control (Pence et al., 1993). Abusive partners use a combination of emotional abuse (e.g., insults, humiliation, undermining a sense of reality); isolation (e.g., generating separation between the victim and various possible support networks); minimizing, denying, and blaming (e.g., downplaying, shifting or rejecting responsibility); using children (e.g., as messengers, and to threaten or maintain the relationship); using male privilege (e.g., utilizing patriarchal norms to make large decisions or enforce gender norms); economic abuse (e.g., isolation from work and money); coercion and threats (e.g., threats of violence, suicide, legal sanctions); and intimidation (e.g., the use of gestures, actions or appearances to intimidate including destroying property or harming pets; Pence et al., 1993).

Not every form of abusive behavior listed in the Duluth model will be used by every perpetrator. Instead, they are seen as some of the common tactics that are used to structure a relationship where the victim is systematically stripped of power and control in multiple areas of their life. Thus, these potential methods of power and control can be seen as the spokes of an abuse wheel. The outer edge of the wheel, surrounding the spokes and holding them together, is physical and sexual violence. Violence (or the threat of violence and sexual violence) is not the only abuse occurring but is the over-arching and maintaining fear that perpetrates the power and control (Pence et al., 1993). When victims are afraid that violence will occur, they are easier to control.

The power and control wheel provides a model to conceptualize the coercion in coercive controlling violence, but it is not perfect. For instance, the original wheel assumes that all abusers perpetrating this form of violence are men. Broadly, the power and control wheel is not complete. IPV literature has not accurately accounted for the systemic inequalities that contribute

to perpetration in marginalized communities (Chavis & Hill, 2008). Advocates are working on expanding the power and control wheel in ways that acknowledge the intersecting identities of victims that might shape their experiences and access to resources (e.g., sexual orientation, age, ability, race, religion/spirituality, class, and gender; Chavis & Hill, 2008). A Multicultural Power and Control Wheel using an ecological model takes into account structural barriers (Chavis & Hill, 2008) and is one of many power and control wheels that provide additional perspectives for diverse individuals who experience IPV ("Wheel Gallery," n.d.). It can also provide perspective on the perpetrators.

It is critical for researchers to understand the power and control dynamics like those outlined by the power and control wheels. Because IPV encompasses physical, psychological, and sexual aggression, we might interpret the construct as too broad to be studied or treated. This fact is exacerbated when we consider the contextual factors that influence couple outcomes and may be overlooked (e.g., diverse identities). The power and control wheel demonstrates the interdependence of all three forms of aggression as a singular construct with a collective impact. This is essential for clinicians to consider in preventing or treating one of the interrelated aspects of IPV. It also highlights how different behaviors can have the same underlying motivation. This connects diverse actions, perpetrators, and presentations under the umbrella of coercive controlling violence.

Coercive controlling violence is the type most often seen in institutionalized settings (e.g., courts, hospitals, and police stations) because the violence is more frequent and severe as a general rule (Kelly & Johnson, 2008). Perpetrators are more likely to be men, and women are the most likely to be seriously injured or killed through IPV, with 20-40% of female homicides occurring at the hand of an intimate partner (Cooper & Smith, 2011; Johnson & Leone, 2005).

However, to answer the debate of gender that started the search for typologies, it is also clear that coercive controlling violence is perpetrated by women in both heterosexual and queer relationships, and this violence can be severe and pervasive (Ard & Makadon, 2011; Dutton & White, 2013).

Violent Resistance

Violent resistance describes the type of IPV where a victim uses self-defense against partners who perpetrate coercive controlling violence (Kelly & Johnson, 2008). Because of the legal implications of the term "self-defense," violent resistance is used to describe their behavior instead. Violent resistance typically occurs immediately after an assault as a way to protect themselves or others (Kelly & Johnson, 2008; Muftić et al., 2007). However, it should be noted that violent resistance does not only occur directly after violence has been initiated. Victims may use violent resistance to prevent future violence. In addition, this form of violence should not be considered less severe: it can have lethal consequences. Some women kill their abusers, although lethal resistance often happens after violence has been initiated by the perpetrator (Huss et al., 2006).

Separation-Instigated Violence

Separation-instigated violence describes episodes of violence, usually limited to one or two incidences, that occur at the end of a relationship (Kelly & Johnson, 2008). This violence lacks a pervasive pattern of power and control from either partner, has not previously been an aspect of their relationship, and is usually part of a difficult separation (Kelly & Johnson, 2008). It is unanticipated and can vary in its severity. It may include behaviors like the destruction of property, physical violence against the partner or another person (e.g., a discovered affair partner), or stalking behaviors (Kelly & Johnson, 2008).

Situational Couple Violence

Situational couple violence is the most common form of violence to occur between intimate partners. This sub-type was formerly known as common couple violence. Because it occurs most frequently, it was identified in survey data that screened for violence. Situational couple violence also has an equal gender distribution, which fueled the debate about the gender of perpetrators (Kelly & Johnson, 2008). Its frequency can lead to misconceptions about situational couple violence that are important to dispel.

Situational couple violence is usually less severe and less frequent, so some people believe that it is unlikely to lead to significant and severe consequences. Although situational couple violence does not include a pervasive pattern of power and control, it can lead to severe forms of violence that may even result in death (Kelly & Johnson, 2008). Women who are victims of situational couple violence are less likely to experience psychological and physical health concerns that require treatment than victims of coercive controlling violence (Johnson & Leone, 2005), but both men and women experience poor mental health outcomes as a consequence of this type of IPV (Afifi et al., 2009).

Situational couple violence and coercive controlling violence differ primarily in their development and context. Coercive controlling violence is distinguished by attempts to exert power and control over the partner, whereas situational couple violence occurs only when conflict escalates until violence is perpetrated (Kelly & Johnson, 2008). Thus poor communication skills, difficulty with managing conflict, attitudes regarding violence, and gender norms are all predictive of victimization and perpetration of situational couple violence (Bell & Naugle, 2008; Heise, 2011; Santana et al., 2006). Understanding these causes is an essential

aspect of identification, treatment, and prevention. If poor conflict management sets the stage for situational couple violence, conflict management skills may reduce its occurrence.

Why Does Intimate Partner Violence Occur? A Literature Review

A number of theories have been outlined over decades of research to explain IPV and its different typologies. These theories serve as the foundation for prevention and treatment programs, providing a framework for interventions.

Feminist Theories

Feminist theories of IPV look to contextualize the pattern of violence within the social and cultural landscape of patriarchal societies. More specifically, this violence is seen as the result of the inequality that women experience within society; the gender roles that assign womxn a subservient role and men positions of power; and the lack of access to resources in order to challenge or combat this violence (Dobash & Dobash, 1977; Walker, 2007). Early evidence supported these theories by demonstrating that gender norms (and traditional views related to these roles) are associated with a higher likelihood of IPV in relationships (Leonard & Senchak, 1996).

Gender norms became a primary target for IPV prevention to account for its influence on violence. However, the influence of gender norms is moderated by the conflict styles of the couple (Leonard & Senchak, 1996). There are also relationships with violence where the male partner does not prescribe to patriarchal ideas (Leonard & Senchak, 1996). Feminist theory likely sheds light on coercive controlling violence, where power and control are central features. It cannot adequately account for situational couple violence, however. Thus, addressing gender norms in prevention and treatment may be part of the intervention but is unlikely to provide a comprehensive reduction in violence.

Social Learning Theory

Social learning theory looks to explain human behavior by highlighting the role of observation and modeling (Bandura, 2017). Thus behaviors, attitudes, and emotions are partially formed by observing, imitating, and eventually adopting them. This can also be extended to violent and aggressive behaviors like IPV (Bandura, 1973; Mihalic & Elliott, 1997). From this theoretical perspective, individuals who have witnessed aggressive or violent behavior, particularly in the intimate relationships they may have observed while young, are more likely to engage in that behavior during their own adolescence and adulthood (Bandura, 1973; Mihalic & Elliott, 1997). This has been supported by evidence that suggests witnessing IPV at a young age increases the risk of both IPV victimization and perpetration (Roberts et al., 2010; Shook et al., 2000; Temple et al., 2013; Whitfield et al., 2003; Wood & Sommers, 2011).

Social learning theory can inform interventions but cannot fully prescribe intervention methods. This theory does provide insight into the impact of observing violence and contributing factors that lend to IPV, but it is limited in its ability to explain IPV perpetration in individuals who have not witnessed it in childhood. In addition, static and distal risk factors like childhood experience can have limited impacts on prevention and treatment strategies for IPV in later life (Bell & Naugle, 2008). However, it does provide a potential target population. Individuals who have witnessed IPV are at an increased risk of being both perpetrators and victims (Whitfield et al., 2003). This creates a target population of at-risk youths who may particularly benefit from IPV prevention programs. Limited intervention resources can dictate that prevention strategies be emphasized for those who are most at risk.

Vulnerability-Stress-Adaptation Model

The vulnerability-stress-adaptation (VSA) model was designed to broadly understand the way that romantic relationships function and satisfaction is achieved (Karney & Bradbury, 1995). Within this model, relationship quality is impacted by a combination of each partner's vulnerability (e.g., genetic traits, personality traits, lived experiences), stressful events or circumstances that arise (e.g., infidelity, job loss), and the adaptive processes that they can employ (e.g., communication, conflict management, problem-solving; Karney & Bradbury, 1995). This model has been applied to IPV, explaining ways that perpetrator vulnerabilities (e.g., aggressiveness and impulsivity), stressors, and inadequate adaptive processes are predictive of higher rates of IPV (Langer et al., 2008).

The VSA model accounts for gaps outlined in the previous two theories. It builds substantially through its ability to account for previous experiences (e.g., witnessing IPV in childhood) while allowing for alternative explanations that relate more to life stressors and poor coping mechanisms. The VSA provides the most coherent explanation for situational couple violence thus far. Situational factors and poor relational skills (e.g., coping, conflict management, and communication) can lead to violence in relationships that might otherwise be satisfying. Importantly, adaptive processes generate leads for treatment and prevention. They can be targeted in interventions to reduce unhealthy or violent responses. However, this model does not account for all of the contextual factors that may contribute to or maintain IPV (e.g., systemic oppression, poverty, or functional analysis of the violence).

Contextual Framework

The contextual framework model of IPV sought to build on previous theories by providing the opportunity to assess micro and macro-level contextual factors that surround individual IPV events and/or couples (Bell & Naugle, 2008). More specifically, the model shows

that target physical violence behaviors are caused and maintained by a number of variables: motivating factors (e.g., substance use, distress, satisfaction); antecedents which can be distal (e.g., childhood experiences, personality characteristics, genetics) or proximal (e.g., conflict occurring in the relationship, current and recent stressors); discriminative stimuli (e.g., who is present in the room, where is it occurring, are there weapons present); behavioral repertoire (e.g., skills for coping, problem-solving, emotion regulation, conflict, etc.); verbal rules (e.g., stated beliefs about violence, gender, relationships, conflict, substance use); and finally, the ways that consequences of IPV target behaviors can ultimately maintain them (e.g., violence reducing distress, avoiding the conflict, control of the partner, criminal charges; Bell & Naugle, 2008).

The contextual framework model provides the most comprehensive explanation for both coercive controlling and situational couple violence. It takes principles from feminist, social learning, and VSA theories and builds a comprehensive model. It pulls from the same research pool that indicates gender attitudes, previous experiences, and adaptive strategies influence IPV while connecting the adaptive consequences of IPV that maintain the behavior. Researchers can understand coercive controlling violence through the adaptiveness of the consequences: it allows the abuser to maintain control. Situational couple violence is caused by a limited behavioral repertoire in response to antecedents. More importantly, the model allows for a flexible application of these factors depending on each unique relationship, which can change over time. This has implications for intervention targets.

When and for Whom is Intimate Partner Violence Occurring?

Beyond the "why" of IPV, who it happens to, and when it occurs contribute to prevention and treatment. Given a contextual framework, the demographic factors of victims provide important clues to interventions. This includes who interventions should be targeted at and when

they should occur in the lifespan. Primary prevention should include interventions beginning at or around adolescence, targeted at both men and women, and focusing on those who are at a higher risk for victimization or perpetration.

Lay conceptualizations of IPV might incorrectly lend to the belief that it is an inherently adult problem. Domestic violence shelters, media content, and publicly displayed court cases often involve adult, married, or cohabitating relationships. In spite of this, most individuals report that their first experience with physical violence, rape/sexual assault, or stalking by a romantic partner occurred before the age of 18 (Smith et al., 2018). Between 13 and 61% of women worldwide report physical or sexual violence from an intimate partner between 15 and 49 years of age: indicating that these behaviors begin during adolescence (Garcia-Moreno et al., 2005). The riskiest period for violence will guide the period of intervention.

IPV occurs most frequently in adolescence and young adulthood, with the highest risk occurring between 15 and 30 years of age (Brown & Bulanda, 2008; Catallozzi et al., 2011; Cui et al., 2013; Hickman et al., 2004; Johnson et al., 2015; Rivara et al., 2009; Smith et al., 2018). This prevalence exists in rural and national samples. Twenty-five percent of rural middle-school students had experienced IPV (Foshee et al., 1996). In a national survey, 63% of adolescents 12-18 who had been in a romantic relationship reported perpetrating one form of IPV, and 69% reported being a victim of this violence (Lee & Wong, 2022). A broad pattern shows that the risk of IPV begins in adolescence and declines with age. (Capaldi et al., 2012; Kim et al., 2008; Rodriguez et al., 2001; Stith, Smith, et al., 2004). This is consistent with the idea that people in their youth are more likely to be impulsive and that people develop more self-control, warmth, and emotional stability with age (Roberts & Mroczek, 2008). Interventions targeted at preventing the first occurrence of IPV must be applied to adolescents and young adults to be effective.

Gender is another relevant demographic feature that can impact intervention. Researchers have debated the gender of IPV victims and perpetrators for decades (Kelly & Johnson, 2008). Since that time, it has become clear that all types of IPV are perpetrated by both men and women (Capaldi et al., 2012; Kelly & Johnson, 2008; Rodriguez et al., 2001). Women are equally, if not more likely to use physical violence against their male partners (Capaldi et al., 2012). Although women are also more likely to be seriously injured by their male partners (Capaldi et al., 2012), physical abuse has impacts on physical and mental health regardless of the physical injury caused by the violence (Breiding et al., 2008; Coker et al., 2000; Smith et al., 2018; Warshaw et al., 2009). Additional research is necessary for an understanding of the ways that IPV impacts LGBTQIA+ relationships and perpetration rates in genderqueer and fluid individuals. The current body of literature justifies men and women both as appropriate targets of prevention and intervention strategies as both victims and perpetrators.

In addition to age and gender, many factors are related to both IPV perpetration and victimization that can impact intervention. These include lower-income, low education, job instability, adverse childhood events, stress, anxiety, antisocial traits, attitudes related to violence and gender, a history of violence or criminality, substance use disorders, unhealthy communication patterns, high levels of couple conflict, an association with peers who engage in IPV behaviors, poverty, and systemic barriers (Browning, 2002; Capaldi et al., 2012; Reyes et al., 2016; Stith, Smith, et al., 2004; Vagi et al., 2013). Beyond these factors, sexual orientation and gender minorities, as well as women of color, are disproportionally impacted by IPV perpetration (Breiding et al., 2015; Johns et al., 2019, 2020; Stockman et al., 2015). IPV prevention is likely to have the greatest impact on populations at the greatest risk. Prevention

programs that target individuals based on key demographic or experiential factors may increase the intervention's effectiveness.

Why Primary Prevention for Intimate Partner Violence?

The consequences of IPV are broad and pervasive, impacting the physical and psychological health of victims and witnesses while having additional impacts on society economically. The Centers for Disease Control generated a document to outline its costs and the possible means of addressing them (Niolon et al., 2017), highlighting that prevention is the most important means of reducing the impact of IPV on individuals and communities.

Physical costs are a primary concern when violence is enacted. Beyond the 41% of female victims and 17% of male victims who experience physical injuries as a result of violence (Breiding et al., 2015), nearly 40% of female homicides and 16% of murders are the result of IPV (Cooper & Smith, 2011). There are also a host of physical disorders that can result indirectly from the stress and trauma of IPV and affect bodily systems and behaviors (e.g., cardiovascular, gastrointestinal, reproductive, musculoskeletal, nervous system, substance abuse, and HIV risk behaviors; Black, 2011; Breiding et al., 2008). In fact, women who experienced psychological violence alone with no physical violence were at an increased risk for work-limiting conditions, arthritis, pain conditions, migraines, stammering, sexually transmitted infections, and various gastrointestinal conditions (Coker et al., 2000). The fact that psychological aggression has similar physical outcomes as physical violence demonstrates the importance of including the broad behaviors that define the IPV construct (e.g., psychological, physical, sexual aggression, and stalking).

Physical symptoms are also inextricably linked with psychological symptoms. Psychologically, victims are more likely to experience depression, anxiety, PTSD, and

somatization (Smith et al., 2018; Warshaw et al., 2009). Women who experienced both physical and psychological violence and women who experienced psychological violence alone were more likely to have both higher incidences and severity of depression, anxiety, PTSD, and suicidality with no statistically significant differences between women who did not experience physical violence (Pico-Alfonso et al., 2006). All forms of IPV have negative impacts on the mental health outcomes of the victims who experience them, and poor mental health extends beyond the individual.

IPV is considered a public health crisis because its impact reaches the broad public. The collective cost of medical treatment, mental health services, legal fees and services, and lost wages have a pervasive economic impact on society that was estimated at 5.8 billion dollars 20 years ago (Niolon et al., 2017), with a lifetime cost of $103,767 for female victims and $23,414 for male victims (Peterson et al., 2018). That estimate, by inflation alone, is likely to be an underestimate now. The only viable means to reduce these physical, psychological, and economic impacts is to prevent the violence from occurring. Primary interventions that can reduce later mental and physical health concerns will be less costly.

Primary prevention is more likely to reduce harm and cost than secondary or tertiary prevention. Primary prevention describes interventions that would reduce the likelihood of IPV before it occurs (Min et al., 2013). Secondary prevention would aim to detect IPV in its early stages and intervene before more serious impacts occur (Min et al., 2013). In an IPV context, that might include targeting high-conflict couples who demonstrate minor forms of psychological or physical violence in their relationships. Tertiary programs aim to treat the impacts and reduce relapse after IPV has already occurred (Min et al., 2013). Perpetrator and victim treatment programs would classify as tertiary prevention. Primary prevention programs thus result in the

least mental, physical, and economic cost when they are effective. To develop these programs, researchers must consider whom they should target (e.g., men or women; Archer, 2000; Langhinrichsen-Rohling, 2010); what they should target (e.g., attitudes related to aggression or behaviors; Capaldi et al., 2007); and how it should be targeted (e.g., promoting aspects of a healthy relationship; Niolon et al., 2017). In addition to target populations, outcomes, and methods, researchers have to consider the modality of preventative measure dissemination (e.g., live instruction, mobile app, mailed booklet, etc.).

What Does Intimate Partner Violence Prevention Target?

IPV prevention programs generally target a few discrete criteria: 1) they look to change behaviors that are related to IPV or are considered risk factors for later perpetration, 2) they look to change attitudes that are related to violence, gender, or bystander roles and 3) they look to develop healthy relationship or bystander skills that will reduce IPV (Crooks et al., 2019; Lee & Wong, 2022; Leen et al., 2013).

The ultimate goal for most prevention programs is changing IPV behaviors. One of the primary strategies used by prevention programs to reduce the likelihood of IPV and aggressive behaviors is providing psychoeducation about IPV and its impacts (Foshee et al., 2005; Storer et al., 2016; Taylor et al., 2010). The idea behind this psychoeducation is that individuals may not understand what IPV is or the physical and psychological consequences associated with it. As people better understand the construct and its impact, they will inherently reduce the perpetrated behaviors. Essentially, it is believed that changing attitudes related to unhealthy behaviors will ultimately reduce the problematic behaviors themselves.

Psychoeducation can also change attitudes and beliefs related to IPV and bystander behaviors (Banyard et al., 2007; Cissner, 2009; Claussen, 2017; Coker et al., 2011; Foshee et al.,

2005; Miller et al., 2012; Storer et al., 2016; Taylor et al., 2010; Taylor et al., 2017; Wolfe et al., 2003). These interventions seek to change attitudes and beliefs by defining IPV and describing its impacts, but also by generating a sense of efficacy in their ability to intervene and by dispelling myths related to IPV perpetration (e.g., gender norms, norms around sexual violence, and myths about who perpetrates). The noted connection between traditional gender norms and IPV (Leonard & Senchak, 1996) might indicate that addressing beliefs and attitudes may reduce IPV, particularly because individuals who have previously perpetrated IPV are more likely to have permissive attitudes and perpetrate again (Capaldi et al., 2012; Stith, Smith, et al., 2004). The causal direction of this link has not been explored, however. It is possible that permissive attitudes cause IPV, but it is also possible that people who perpetrate IPV reduce cognitive dissonance of undesirable behaviors by making internal justifications of their behavior. Changing attitudes may not be sufficient when behaviors need to change.

Considering this, many prevention programs aim to change behaviors by focusing on skills that can be gained as opposed to behaviors or attitudes that need to be eliminated (Foshee et al., 2005; Miller et al., 2012; Storer et al., 2016; Wolfe et al., 2008). This leans on wisdom indicating that the most successful prevention strategies do not simply try to reduce unwanted behaviors, but seek to develop strengths by adding more adaptive behaviors in their place (Crooks et al., 2019). These skills may focus on communication, healthy dating habits, or bystander interventions, but broadly seek to reduce IPV by developing behaviors that can either replace violence or reduce the likelihood that it will occur (Foshee et al., 2005; Miller et al., 2012; Storer et al., 2016; Wolfe et al., 2008).

It should be noted that some prevention programs are targeted specifically at individuals who may be at a higher risk for perpetration or victimization (e.g., those who have witnessed

IPV; Ball et al., 2009; Foshee et al., 2015; National Research Council (US), 2009), but there has been a general failure to systematically study prevention programs with certain populations who are most at risk for IPV victimization (e.g., indigenous womxn, queer youth; Crooks et al., 2019). This failure to perform culturally responsive research for various at-risk demographics is a limitation in the current prevention literature that limits the generalizability of the current models and their broad aims.

Given the emphasis on psychoeducation and behavioral skills in current IPV prevention programs, we would anticipate that studies measuring their effectiveness will demonstrate an increased knowledge about IPV and its impact; altered attitudes and beliefs about IPV, gender, and bystander responsibilities; increased healthy and constructive relational skills; and a correlated decrease in IPV perpetration, victimization, and/or bystander behaviors. Correlations between changes in knowledge and attitude and changes in behavior would support theories of IPV that suggest attitudes cause violence (e.g., feminist theories). In addition, because IPV is an interrelated construct that includes physical violence, psychological aggression, sexual violence and stalking, studies should demonstrate that reductions in some IPV behaviors impact others.

What Have Previous Primary Prevention Meta-Analyses Shown?

Meta-analyses have already begun to explore the success of various programs, for various populations, in various settings. These include school-based dating violence prevention programs and studies targeting adolescents and young adults who are most at risk. Because adolescence marks the beginning of IPV risk, many programs have sought to provide prevention to school-aged children in an accessible setting when they are least likely to have experienced IPV (Edwards & Hinsz, 2014).

School programs have demonstrated effectiveness in changing attitudes or reducing behaviors (Edwards & Hinsz, 2014). The overall weighted mean effect size across eight included studies was $r = 0.11$ (CI[0.08, 0.15]). In general, there was a positive effect in prevention programs. However, they found it important to note that 25% of the studies had a negative effect size indicating that over time, participants became more accepting of IPV (Edwards & Hinsz, 2014). This meta-analysis required participants were between 8th and 12th grade; using a program to reduce IPV (either dating or sexual violence); with either attitudinal or behavioral outcome measures (Edwards & Hinsz, 2014). A final important finding related to a medium negative correlation between the age of the participants and the effect size, with younger participants having more favorable outcomes ($r = -0.42$).

Taken together, this meta-analysis provides insight into important considerations for future studies. The negative correlation with age indicates that it may be most effective to begin interventions at a younger age, as this may be the most appropriate age to shape attitudes and behaviors. It also lends support to the idea that attitudes and behaviors change together and that prevention strategies can regulate both. However, it is possible that their effect sizes are an over-estimation because pre-post studies were used in the meta-analysis. The lack of a control group in pre-post study designs leads to larger effect sizes that can artificially inflate effectiveness (Hawkins et al., 2020).

A meta-analysis of school-based programs using experimental or quasi-experimental designs extended these results with increased effect size accuracy (De La Rue et al., 2017). The study targeted individuals in middle or high school; included outcomes that measure knowledge, attitudes, and IPV; and included sexual aggression and sexual violence programs. Their meta-analysis of 23 studies indicated that there was a positive effect size of SMD = 0.22 on increasing

IPV knowledge (CI[0.05, 0.39]) and an improvement in attitudes related to IPV with an effect size of SMD = 0.14 (CI[0.10, 0.19]; De La Rue et al., 2017). However, they did not find significant effects on IPV perpetration and victimization. They recommend that programs continue to incorporate skill-building components (De La Rue et al., 2017).

This meta-analysis, in contrast to the previous meta-analysis of school-based interventions, questions the connection between attitudes and behaviors. When including studies with more conservative estimates of effect sizes, the connection between attitudes and behaviors diminished. It is possible that IPV prevention programs alter attitudes, but do not ultimately impact victimization and perpetration. Attitudes may not be necessary or sufficient for reducing IPV, at least within a school-based program.

In a meta-analysis looking broadly at adolescents and young adults, without specifying location or requiring experimental or quasi-experimental designs, IPV prevention programs broadly increased knowledge with an effect size of $d = 0.57$ ($z = 3.59$), altered attitudes in a favorable direction with an effect size of $d = 0.19$ ($z = 3.88$), and decreased violence perpetration with an effect size of $d = 0.16$ ($z = 3.11$). Of note, there were no statistically significant effects on reducing victimization or increasing bystander behaviors. Studies were included if they had dating violence prevention or education for adolescent participants; there was at least a single quantitative outcome measure that is related to knowledge, attitudes, behaviors (either violence or victimization or bystander); an effect size was calculable; and was either experimental, quasi-experimental or pre-test post-test in research design (Lee & Wong, 2022). They noted that a major limitation within the literature is the lacking of longitudinal studies which limits the long-term generalizability of these results, particularly considering that the risks of IPV extend beyond adolescence into adulthood (Lee & Wong, 2022). Again, the connection between knowledge,

attitudes and behaviors were maintained. However, there was more impact on knowledge than attitudes or behaviors.

In a meta-analysis requiring an experimental or quasi-experimental design at the middle, high school and college level were assessed (Fellmeth et al., 2013). The 33 included studies needed to have a measure for IPV victimization, improvement in mental health, reductions in IPV and/or increased knowledge about dating violence. Eight studies were included for the analysis of IPV behaviors; however, there was heterogeneity within these studies that prevented an analysis. Twenty-two studies analyzed improvements in attitudes and beliefs related to IPV but found a nonsignificant standardized mean difference (SMD = 0.06; CI[-0.31, 0.16]). Similarly, studies that measured increased knowledge had significant heterogeneity that reduced confidence (SMD = 0.44; CI[0.28, 0.20]; Fellmeth et al., 2013). This indicated that there was no reliable evidence that prevention programs impact the attitudes, skills, or behaviors related to IPV.

Taken together a number of gaps appear within the literature: inconsistency in results, a failure to account for important target demographics, the length of the intervention, the type of intervention and its method of dissemination. Some studies indicate that prevention programs help to improve attitudes and behaviors, and some indicate attitudes but not behaviors are impacted. Further exploration of the link between attitudes and behaviors will add clarity to the existing literature and the theories that conceptualize IPV. The current meta-analyses do not moderate for the target population and if they are at an increased risk for IPV. At-risk populations will likely have greater impacts as IPV is more likely to occur in these high-risk groups. In addition, no meta-analysis has expanded the age range to include young adults who fall within the age range of highest risk, 15-24 (Brown & Bulanda, 2008; Catallozzi et al., 2011;

Cui et al., 2013; Hickman et al., 2004; Smith et al., 2018). Another important consideration is the dosage of intervention. How long should interventions be to achieve success? In addition to length, these effects may be moderated by the primary purpose of the intervention: to reduce IPV or to improve relational health with IPV reduction as a potential outcome. This study will also include programs that aim to reduce sexual violence and analyze a distinct set of moderators that have never been explored in this combination (e.g., the programs primary aim, method of dissemination, population, length, etc.). This allows for a collection of significantly more studies to assess the broad spectrum of primary programs that can reduce IPV.

A final major gap within the existing meta-analysis literature, is the exploration of primary IPV preventions that incorporate novel methods of dissemination. Studies of online or distance interventions (i.e., those that are mailed, app-based, or otherwise self-directed) thus far have focused on assisting victims who have already experienced IPV. In order to focus on reducing the harmful impacts, this will require looking more closely at ways to provide primary interventions that are accessible to diverse groups. The COVID-19 pandemic revealed that digital interventions can expand access and treatment responsiveness to address mental health concerns (Moreno et al., 2020).

Previous research has demonstrated that online IPV intervention programs are able to successfully reduce participants' mental health concerns (i.e., anger and depression), as well as reduce psychological and physical violence perpetration compared to controls (Spencer et al., 2021). These findings corroborate research that suggests online interventions are able to provide a viable alternative to facilitated programs in addressing mental health concerns (Moreno et al., 2020). In spite of this hopeful trend, no meta-analysis has specifically sought to explore

dissemination method as a moderator while looking at both facilitated and self-directed programs.

Flexible interventions can increase accessibility to individuals with limited transportation, limited financial resources, in rural areas, and generally increase the number of individuals who can be reached. When considering the risk factors for IPV (e.g., low education, job instability, adverse childhood events, stress, poverty, and systemic barriers), it becomes clear that the accessibility of prevention programs is an essential consideration. Reduction of IPV in the most at-risk populations requires that we attend to programs that can be disseminated in spaces with limited resources. Thus, a primary aim of this study is to understand the efficacy of both self-guided and direct services aimed at preventing IPV. This meta-analysis will seek to understand the efficacy of both distance and direct services aimed at preventing IPV.

The Current Study

The variable results of perpetrator and victim treatments make prevention particularly important if it is effective (Anderson & Van Ee, 2018; Babcock et al., 2004; Cheng et al., 2021; Karakurt et al., 2019; Maguire, 2018; Stith, Rosen, et al., 2004; Stover et al., 2009). Thus, researchers are interested in developing empirically tested programs that reduce IPV (Jennings et al., 2017; Niolon et al., 2017). To develop these programs, they must consider whom they should target (e.g., men and/or women; Archer, 2000; Langhinrichsen-Rohling, 2010); what they should target (e.g., attitudes related to aggression or behaviors; (Capaldi et al., 2007); and how it should be targeted (e.g., promoting aspects of a healthy relationship; (Niolon et al., 2017). In addition to target populations, outcomes, and methods, researchers have to consider how to deliver the intervention (e.g., live instruction, mobile app, mailed booklet, etc.).

The current study aimed to conduct a meta-analysis that builds upon the existing literature by analyzing the broad effectiveness of IPV primary preventions in adolescence and young adulthood, while specifically analyzing the moderator of novel intervention methods (e.g., online, mobile app or mailed interventions). This study also expanded on previous meta-analyses by considering programs that do not singularly target IPV but may also address broad relationship health. This allowed the exploration of considering the effectiveness of strengths-based approaches to reducing IPV. Additional moderators included age; gender; at-risk populations; school or community-based programs; and intervention length. Outcomes included measures of attitudes, changes in knowledge, and behaviors. Experimental and quasi-experimental studies were included to gain an accurate and rigorous understanding of the state of the literature, methodological strengths and weaknesses, and clinical implications of primary prevention interventions. Overall, I hypothesized that IPV prevention programs will improve attitudes, but not reduce behaviors. This trend was hypothesized to hold true whether the method of dissemination was in-person or distance.

Method

Search Procedure

In order to maximize the likelihood of finding all relevant studies, I searched for articles using two main methods. The first included the search of various databases including Embase, MEDLINE, Web of Science, Google Scholar and APA Psycinfo. These selected databases have been shown to optimize searches in systematic literature analysis to provide the most unique and subject specific articles (Bramer et al., 2017). The search terms included combinations of the following terms: “teen OR adolescent OR youth OR young adult” AND “dating violence OR intimate partner violence OR relationship violence OR dating abuse OR relationship abuse OR

abuse OR partner abuse OR intimate partner aggression" AND "relationship health OR healthy relationship" AND "program OR education OR treatment OR intervention OR prevention" AND "efficacy OR effectiveness." To assess for possible online and distance interventions, the phrases "online OR technology based OR mobile OR mobile app OR email OR mail OR internet OR phone OR smartphone OR apps OR applications" were used in addition to the above combinations. Secondly, I used the references of the discovered articles to search for previously completed studies that are relevant, including previously conducted systematic literature reviews and meta-analyses.

Selection and Inclusion Criteria

A list of titles was collected and reviewed by two undergraduate research assistants and myself who verified that the studies include the assessment of an IPV prevention program, or a relationship health program that measures either attitudes related to IPV, or its impacts on the eventual perpetration or victimization of IPV. Studies that assess an IPV prevention program were moved to a database for coding. I coded each study along with a second undergraduate research assistant (RA) who received training on the variables to look for and how to find the necessary statistics. I provided feedback during the training period. Discrepancies between my coding and the undergraduate RA were addressed by looking to the original source. If a manuscript did not contain the answer or the necessary statistic, the author of the article was contacted, if possible.

Intimate Partner Violence Prevention Program

Studies were included if they used a primary prevention program that seeks to target some component of IPV. This can include physical, psychological or sexual aggression. Although this is a broad construct, research indicates that physical violence and psychological

aggression both impact physical and mental health and both can frequently co-occur (Black, 2011; Breiding et al., 2008; Coker et al., 2011; Pico-Alfonso et al., 2006; Smith et al., 2018; Warshaw et al., 2009). Eliminating a presentation of IPV will artificially limit the real-world effectiveness of prevention programs. Psychoeducational and skills-based programs that are broadly designed to improve relationship health but include a measure of IPV behaviors or attitudes will also be included. It is possible that some individuals included in the studies will have perpetrated or been victimized by IPV. Studies were included as long as the prevention is not *intended* as a secondary prevention program.

Age

Studies were eliminated if the average age is higher than 30 years old when the risk of IPV begins to decline (Jennings et al., 2017; Johnson et al., 2015; Rivara et al., 2009). It is possible that there will be individuals who are older or younger than 30, but the average age of participants was less than 30. Although the range of risk is 15-30, the average age can be less than 15 as preventions may be aiming to reduce the risk prior to the age where risk increases. Because the aim of the study is to target primary preventions, reducing the personal and societal cost by intervening before harm is caused, prevention programs following the age of 30 are likely to pick up increasing numbers of participants who have already experienced or perpetrated IPV, making it a secondary or tertiary prevention. To focus on primary prevention, the age range was limited to an average age of 30 or below.

Outcome Data

Studies were required to include effects that rely on quantitative methods so that an effect size can be statistically determined. If they failed to provide the necessary information (e.g., group size, means, standard deviations), an effort was made to contact the authors and obtain the

relevant information. A follow-up email was sent two weeks after the initial attempt. If the author was unavailable, I made attempts to find other useable statistics within the article that could be coded, although this proved fruitless in many instances (Lipsey & Wilson, 2001).

Study Design

I included experimental and quasi-experimental prevention studies. Each study required a no-treatment control to ensure the necessary statistics could be obtained. Quasi-experimental studies have a higher risk of bias. To address this, studies were coded as experimental or quasi-experimental and I applied an a priori analysis to test if they are statistically similar (Lipsey & Wilson, 2001). Statistically similar studies can then be combined to increase power. Because of the large average sample size and number of studies (47 studies; N = 47,157), the analysis should be capable of handling even high heterogeneity up to 75% (Huedo-Medina et al., 2006). If the comparison group was another prevention program, the study was reported as two single group pre-test post-test studies. Pre-post designs were initially collected to be analyzed separately in a secondary analysis (not reported in this study). Pre-post designs are appropriate for early program evaluation efforts and provide valuable additional insight to ensure a comprehensive view of the literature. However, rigorous control-group designs are needed to establish strong causality, indicating they should not serve as the primary basis for the meta-analysis (Hawkins et al., 2020). Ultimately, 32 pre-post design studies were identified. This number of studies would justify a separate analysis that qualitatively appraises the characteristics of the prevention programs, and thus an analysis of pre-post studies was beyond the scope of the current dissertation.

Publication Status

Studies were included that were both published or unpublished so long as they are rigorously reviewed. This included a government research project and dissertations that were not published in journals but included a rigorous faculty review process. Including unpublished studies aided in reducing publication bias.

Publication Date

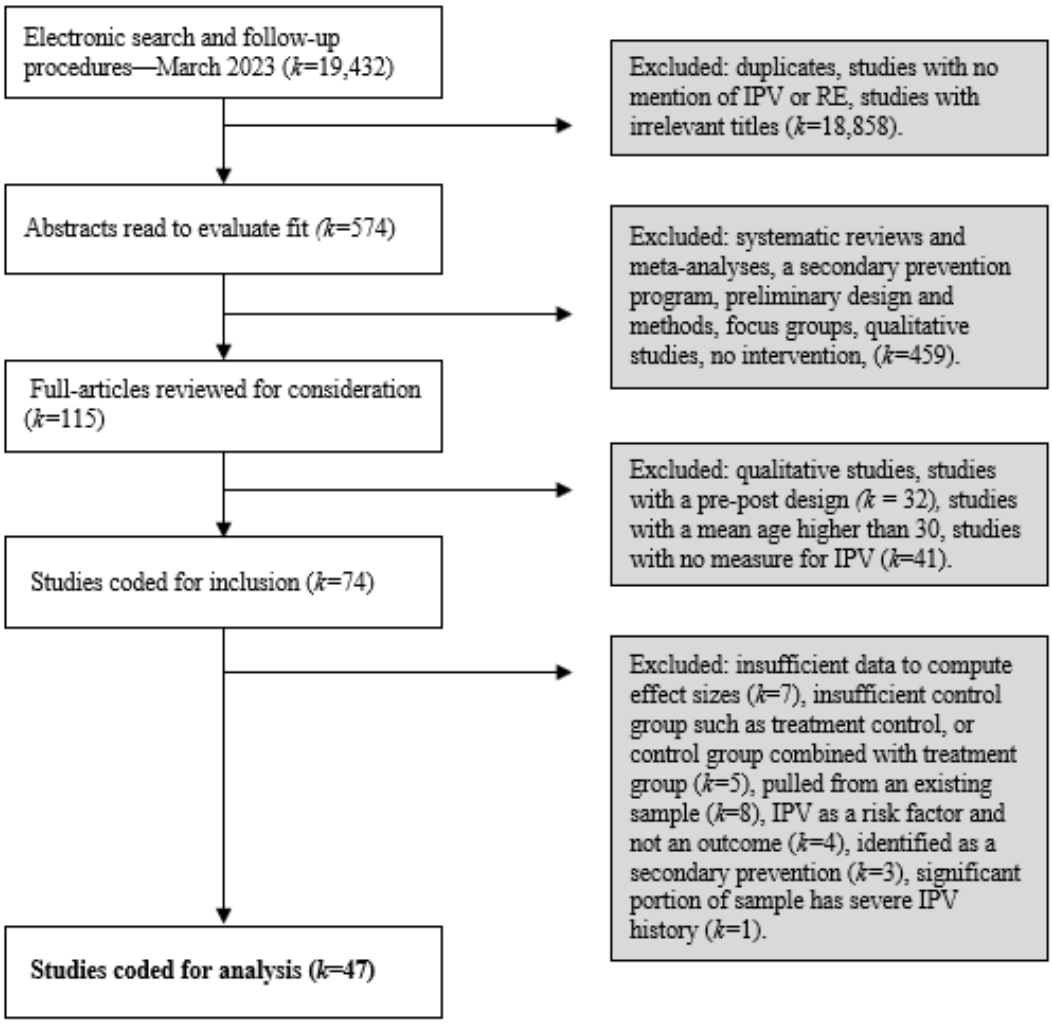
Studies were not excluded because of their publication date to ensure maximum inclusion of relevant studies. Furthermore, there is a history of well-established prevention programs that have been studied for multiple decades, and this allows me to capture the documented efficacy of these studies over time.

A summary of the search, inclusion and exclusion process is represented in Figure 1 with a list of the included studies appended in Appendix A. Ultimately, we coded 47 studies with experimental or quasi-experimental designs that contained 47 independent samples. These 47 samples provided 400 effect sizes. It should be noted that one study included multiple independent samples along with a control group and was coded separately (Silverman, 2000). In contrast, one study was a long-term follow-up to an earlier sample, and these two studies were combined for coding (Miller et al., 2012, 2013). Given the fact that including studies with overlapping samples violate assumptions of statistical independence (Bom & Rachinger, 2020), studies with overlapping samples were identified and combined or excluded from the final set of studies. Finally, studies whose control group included an alternative treatment intervention were excluded, as their comparison to no-treatment controls could lead to an underestimation of their effect size.

Coding

Figure 1

Flow Chart of Inclusion/Exclusion Decisions



Coding occurred across various stages. Some potential moderator variables were ultimately di-or trichotomized for the moderator analysis but were listed as continuous or numerical variables during the initial coding phases. As iterations of coding occurred, additional moderators were identified that were suspected to have a meaningful impact and some moderators were not sufficiently powered for analysis (i.e., at least *k* greater than or equal to five). Table 1 outlines the total collection of moderators, the original coding decisions a priori,

and the final coding structure based on the ultimate findings. The planned moderator analyses included method of intervention, gender, age, intervention length, and at-risk population. During the coding process, program setting was added as a post-hoc analysis.

Addressing Bias

In order to address the "file-drawer effect" (i.e., missing studies publication bias; (Baldwin, 2006), I contacted authors who have multiple publications to see if they have any relevant unpublished studies. Any studies that meet the inclusion criteria were added to the database for coding. It has been demonstrated that meta-analyses that do not include unpublished studies can overestimate the effect size by 5-20% (Baldwin, 2006). I searched *Dissertation Abstracts International* to find studies that are yet unpublished but are still peer-reviewed. Even with these proactive efforts to identify all relevant studies for inclusion, I tested for potential missing-study bias using the Duval and Tweedie (Duval & Tweedie, 2000) trim and fill funnel plot method.

Power

To ensure that the study is sufficiently powered for a random effects model, I conducted an a priori power analysis using a Microsoft Excel formula (Valentine et al., 2010). Of the 47 included studies, they have an average sample size of N = 1,003. Previous meta-analyses of prevention interventions have demonstrated an overall effect sizes between 0.056 and 0.22 (De La Rue et al., 2017; Edwards & Hinsz, 2014; Lee & Wong, 2022). In order to detect effect sizes SMD = 0.1, power is determined to be 100% for studies with high heterogeneity.

Beyond power for the overall effect, power for important moderators was also calculated. There were eight studies that analyzed the effects of self-directed prevention programs. These eight studies have an average sample size of 443. The current study is powered at 1.0 for studies

with high heterogeneity to detect an effect size of 0.1. There are 14 studies included that target at-risk populations with an average sample size of approximately 840. The current study is powered at 100% for studies with high heterogeneity. Power for moderators of gender, age, and intervention length are likely to be similar to the power of the overall effect size. Taken together, this meta-analysis is well-powered to detect small effect sizes across the a priori moderators.

Data Analysis

Data analysis was conducted using Comprehensive Meta-Analysis Version 3. I reported descriptive statistics, effect sizes of the included treatments as a standardized mean difference, the heterogeneity of the included studies, and moderator analyses. Because the primary purpose of the study is to examine the distribution of effect sizes in primary prevention programs, effect sizes were calculated using standardized mean group differences (SMD). The SMD is an effect size that takes the variability of the sample into account (Lipsey & Wilson, 2001). If multiple effect sizes were associated with a study, they were combined by their weighted average. I used a random effects estimate, as this model allows effect sizes to vary between studies due to study and intervention methods, in addition to potential sampling error. This provided a more conservative estimate of effect sizes (Lipsey & Wilson, 2001) that can be generalized more reliably to the broader field of studies (Hedges & Vevea, 1998).

In addition, I tested for significant group differences between experimental and quasi-experimental studies at pretest, as suggested by Shadish et al. (2000). No significant differences existed (d_{exp} = 0.199, k = 18; d_{quasi} = 0.168, k = 29; Q = 0.173, p = 0.678) so all control-group studies were analyzed together (Lipsey & Wilson, 2001).

For moderation analyses, Q tests assessed for differences in levels of the moderating variables. To reduce the chance of spurious findings due to chance, I limited moderator analyses

Table 1

Moderator Coding Structure

Moderator	**Original Coding**	**Final Coding Structure**
Method of intervention	In-person or remote	F (facilitated), SD (self-directed)
Rigorously reviewed	Yes or no	Publication: Y (peer-reviewed article), ND (not-published dissertation), NG (not-published gov't project)
Publication year	Year in XXXX format	Year in XXXX format
Study funding	Description of funding source	Gov't funding: Y (gov't funded), N (no gov't funding), N/A (funding source not reported)
Gender	Women in sample by percentage	PW (predominately women), PM (predominately men), M (mixed genders)
Race/ethnicity	Minorities in the sample by percentage, combining all racial and ethnic minorities[a]	PW (predominately White), PM (predominately minority), M (mixed)
Age	Average age of the sample, excluded if < 30	M (avg. age between 11-13), H (avg. age between 14-17), C (avg. age 18+)
Intervention length	Number of hours	1 (0-2 hours), 2 (3-7 hours), 3 (8+ hours), N/A (the intervention was not codable)
Timing of assessment	Timing in months of assessment and follow-up	Immediate (first post-intervention assessment up to 6 mos.), Short-term follow-up (1-6 mos. post intervention), Long-term follow-up (6+ mos. post intervention)

Missing data	Description of method for handling missingness	Y (used imputation), N (did not use imputation)
Program focus	Coded as IPV, relationship education, or sexual assault	IPV (intimate partner violence), RE (relationship education)
At-risk population	Targeting any at-risk population (e.g., previous exposure, low SES, job instability, teen pregnancy)	Y (targeted any at-risk population), N (did not target an at-risk population)
Study design	Experimental or quasi-experimental	E (experimental), Q (quasi-experimental)
Sexual orientation	Percentage of individuals identifying as straight	PH (predominately heterosexual)
Setting	School or community	S (school), C (community)
Country	Country where sample was collected	US (in the US), F (foreign)

Note. Any studies coded as "predominately" indicate that 2/3rds or more of the sample held that demographic characteristic.

[a]If a study indicated that it was from another country (e.g., Mexico), it was coded as 100% racially/ethnically diverse unless otherwise specified.

to the following set: the primary moderator being evaluated included the method of treatment dissemination (e.g., in-person versus distance intervention); additional moderation analyses included gender; whether the intervention targets at-risk populations versus the general public; was intended to prevent IPV specifically or was a subcomponent of a relationship health program; and whether the intervention was disseminated in a school or community setting. These moderators, when sufficiently powered, were assessed for the outcomes of knowledge, attitudes, or behaviors. Each moderator had at least five studies at each level to ensure that there was

adequate power to detect meaningful differences and to avoid the risk of spurious findings from under-powered analyses. Between-study heterogeneity was also measured using the I^2 statistic (Lipsey & Wilson, 2001), with I^2 levels at or above 50% representing moderate heterogeneity, and 75% representing high heterogeneity. The a priori power analysis accounted for levels of heterogeneity to ensure that the study was sufficiently powered. These findings are visually represented using a funnel plot and a table that provides the effect sizes for the outcome and moderator variables.

Results

Descriptive Statistics

A primary aim of this meta-analysis is to better understand the current state of the literature related to IPV primary prevention programs. Table 2 details descriptive statistics highlighting the characteristics of the programs included in this meta-analysis. To assess moderators, we required a minimum of $k = 5$ studies per moderator category. Two primary moderators we determined a priori were the implementation method and the program focus. Of note, eight of the 47 studies (17%) assessed self-directed interventions, indicating that the implementation method can be assessed as a potential moderator. In looking at the focus of the prevention programs, 27 (57%) targeted IPV, 16 (34%) had a broad relationship education focus, and four (8.5%) specifically targeted sexual assault. Because there were not at least five programs designed to reduce sexual violence, these programs were included in the "IPV" category for the final moderator analysis. Altogether, the study was well-powered to conduct moderator analyses on the pre-determined characteristics.

Another important observation for prevention programs relates to their dosage. More specifically, a better understanding of session numbers and their total length can allow us to determine the impact of program quantity. Within the 47 included studies, the programs provided

an average of 8.26 sessions (*SD* = 6.95) that applied 9.32 hours of direct intervention (*SD* = 11.52). Ten studies (21%) provided two hours or less of intervention, 21 (45%) provided between three and seven hours, and fifteen (32%) provided eight or more. This demonstrates that there is significant variability in the dose of these programs, but most would be considered brief.

Final observations from the descriptive statistics relate to demographics. An additional aim of this meta-analysis is to highlight whether these interventions are reaching critical audiences, so we examined age, previous exposure to IPV, race, gender, and sexual orientation. The average age of participants in the included studies is 16.18 years (*SD* = 3.39), meaning that many participants are high school aged or younger (*k* = 37). This indicates that prevention efforts are being incorporated early but highlights the alarmingly high rates of previous exposure in such a young demographic. Specifically, in the 16 studies (34%) that evaluated previous exposure, the average rate was 45.41% (*SD* = 27.63). This included childhood exposure and prior victimization/perpetration. Previous exposure was identified at all sample levels, including middle-school students.

Because individuals who are racial and ethnic minorities are at an increased risk for experiencing IPV, it is essential to consider how prevention programs impact their communities. Taken together, the average percentage of participants who were a racial or ethnic minority was 60.95% (*SD* = 33.93), with 19 studies (40%) having predominately minority participants. This indicates that there has been some effort to understand the implications of IPV prevention programs for racial and ethnic minorities. It is also important to note that IPV occurs regardless of gender, and prevention strategies should be broadly applied. Within the current sample, the average percentage of women was 53.32% (*SD* = 21.78), with 34 studies (72%) including samples that are mixed between men and women. This suggests that gender for men and women

was well accounted for in the current sample. It is important to note that the literature was exclusively binary, and no studies included a measure for individuals who fall outside of the gender binary or have a transgender identity. Similarly, there was a large gap in the literature for assessing sexual orientation. Only nine of the 47 studies (19%) measured sexual orientation. Within these nine studies, the average percentage of heterosexual participants was 96.45% (SD = 5.28), indicating that a major gap exists in the literature for individuals in queer relationships. Altogether, this demonstrates that research is currently making attempts to address racial/ethnic concerns, as well as concerns for men and women, it has not yet adequately addressed IPV in the LGBTQ+ community.

Primary Analyses

First, we performed a comprehensive computation of the cumulative effect of IPV interventions. The resulting effect size $d = 0.175$, derived from a total of 47 studies was statistically significant ($p < 0.001$). Further examination of this effect revealed a moderate degree of heterogeneity ($Q = 142.091$, $p < 0.001$, $I^2 = 67.63$). This value describes the variability within the study results, indicating a certain degree of diversity in the impact of the interventions across different contexts.

To develop more specificity, I followed our a priori plan to analyze the available outcomes along the categories of attitudes, knowledge, and behaviors. Specifically, I derived these categories by reading the referenced measure and assigning it the appropriate label whether it measured an attitude, was related to factual knowledge, or measured a self-reported behavior. As broad categories, attitudes ($d = 0.166$, $k = 29$, $p < 0.001$), knowledge ($d = 0.212$, $k = 12$, $p < 0.001$), and behaviors ($d = 0.160$, $k = 36$, $p < 0.001$) had small, significant effect sizes. Taken

together, IPV primary prevention programs were able to successfully address their targeted outcomes in these domains.

Although a priori decisions were made to analyze the broad categories of attitudes, knowledge, and behaviors, sub-categories of these domains could not be determined until outcomes within the individual studies were identified through coding. Five attitudinal subcategories, one knowledge subcategory, and nine behavioral subcategories were sufficiently powered to assess for significance. What follows are the posthoc analyses that resulted from the final structure of outcomes available within the 47 studies (see Table 3).

A few notable findings arose from these outcomes. The first is that beliefs related to IPV (e.g., the acceptability of this violence) were not significantly impacted by the intervention programs ($d = 0.118$, $k = 13$, $p = 0.071$), but knowledge about IPV did significantly increase ($d = 0.182$, $k = 10$, $p = 0.029$). This suggests that knowledge can be gained without subsequent changes in conceptually related attitudes. Another notable finding indicates that behavioral outcomes were significant across IPV perpetration and victimization [broad perpetration ($d = 0.183$, $k = 31$, $p < 0.001$), physical perpetration ($d = 0.155$, $k = 29$, $p < 0.001$), psychological perpetration ($d = 0.218$, $k = 17$, $p < 0.001$), sexual perpetration ($d = 0.140$, $k = 7$, $p = 0.024$), broad victimization ($d = 0.137$, $k = 19$, $p = 0.002$), physical victimization ($d = 0.175$, $k = 15$, $p = 0.003$), psychological victimization ($d = 0.175$, $k = 11$, $p < 0.001$), and sexual victimization ($d = 0.119$, $k = 5$, $p = 0.052$)], but did not lead to significant effects for relationship skills ($d = -0.066$, $k = 12$, $p = 0.400$). It should be noted that effect sizes were coded so that positive effect sizes indicate changes in the expected direction, and negative effect sizes indicate changes in the opposite. Relationship skills captured an aggregate of communication, emotion regulation, and conflict management skills, and the total effect size was nonsignificant. This may suggest that

Table 2

Descriptive Statistics of Included Studies

Moderator	*k*	Average (SD)
Program Focus		
IPV	27	
Relationship Education	16	
Sexual Assault	4	
Method of Dissemination		
Facilitated	39	
Self-Directed	8	
Individual or Couple		
Individual	43	
Couple	4	
At-Risk Population		
High Risk Population	14	
Target Behavior		
Self	39	
Bystander	5	
Both	3	
Intervention Setting		
School	37	
Community	10	
Country		
US	34	
Foreign	13	
Government Funded		
Yes	29	
No	10	
Not Reported	8	
Published		
Yes	42	

Dissertation	4	
Government Project	1	
Number of Sessions		
Average Sessions		8.26 (6.95)
Average Hours		9.31 (11.52)
Race		
Average % Minorities		60.95% (33.93)
Predominately White	21	
Predominately Minority	19	
Mixed Race/Ethnicity	7	
Age		
Average Age		16.18 (3.39)
Middle-School-Age	10	
High-School-Age	27	
College and Beyond	10	
Gender		
Average % Women		53.32% (21.78)
Predominately Women	9	
Predominately Men	4	
Mixed Gender	34	
Sexual Orientation		
Average % Straight		96.45% (5.28)
Studies with Measure	9	
Studies without Measure	38	
Previous Exposure		
Average % Exposure		45.41% (27.63)
Studies with Measure	16	

the method of behavioral change was not related to changes in relationship skills.

I used trim-and-fill procedures to assess for missing-study bias. Publication bias has the potential to artificially inflate effect sizes, and effect sizes adjusted for publication bias may be a better estimation of the true effect size. Figures 2 – Figure 5 illustrate the associated trim and fill

plots for the aggregated effect sizes, attitudes, knowledge, and behaviors, respectively. I found evidence of potential upward bias in the aggregate of behavioral effect sizes (see Figure 5). This indicates that there is an increased risk of publication bias for behavioral outcomes with an adjusted effect size of $d = 0.084$, nearly half of the observed effect size within the study. The behavioral effect size should be cautiously interpreted, meaning that the observed effect is likely present, but artificially inflated.

In addition to publication bias, I conducted a "leave one out" analysis on the general effect size and aggregate effect size of attitudes, knowledge and behavior. This analysis assesses the impact of each included study by running the analysis while removing one study at a time to determine if one result is significantly impacting the overall effect size. I assessed for outliers and did not find anything of note.

There was high heterogeneity in attitude ($Q = 160.744$, $p < 0.001$, $I^2 = 89.18$) and knowledge ($Q = 106.150$, $p < 0.001$, $I^2 = 89.64$) effect sizes. Behavior effect sizes had moderate levels of heterogeneity ($Q = 118.076$, $p < 0.001$, $I^2 = 70.36$) approaching high levels. Thus, planned moderators were analyzed for all effect sizes to retain power. Table 4 details the results of the planned moderator analyses. In particular, there was not a significant difference between facilitated and self-directed prevention programs ($d_F = 0.177$, $k = 39$, $p < 0.001$; $d_{SD} = 0.160$, $k = 8$, $p = 0.132$; $Q = 0.023$, $p = 0.878$) It should be noted that self-directed prevention programs did not produce a statistically significant effect size when analyzed alone. This means that the effect size for self-directed programs was not statistically different from zero but the average of these two groups of studies was not significantly different from the average of facilitated programs. It is likely that the effect size for self-directed studies was not sufficiently powered to detect significance and more studies analyzing these interventions would increase confidence in

Table 3

Effect Sizes for Outcome Categories

Outcome	*k*	*d*	Range (Low-High)	CI (Low-Hight)	PI (Low-High)	*p*	*Q*	*p*	Adjusted *d* (trimmed studies)
Program success aggregate	47	0.175	-0.895-1.090	0.123-0.227	-0.093-0.443	<0.001	142.091	<0.001	0.119 (12)
Attitudes	29	0.166	-0.226-1.395	0.075-0.256	-0.292-0.623	<0.001	258.689	<0.001	0.166 (0)
Bystander	6	0.126	0.004-0.407	-0.019-0.270	-0.310-0.562	0.088	18.639	0.002	
Efficacy	9	0.118	-0.226-0.363	0.030-0.206	-0.141-0.377	0.008	22.587	0.004	
Gender norms	6	0.292	-0.155-1.504	-0.001-0.586	-0.743-1.327	0.051	83.921	<0.001	
IPV beliefs	13	0.118	-0.268-0.357	-0.010-0.247	-0.370-0.606	0.071	117.609	<0.001	
Rx beliefs	7	0.303	-0.179-1.177	0.053-0.553	-0.576-1.182	0.018	77.089	<0.001	
Behaviors	36	0.160	-0.895-0.785	0.096-0.223	-0.132-0.452	<0.001	118.076	<0.001	0.084 (11)
Perpetration	31	0.188	-0.186-0.750	0.127-0.248	-0.057-0.433	<0.001	72.158	<0.001	
Physical perp.	18	0.167	-0.243-0.737	0.080-0.253	-0.131-0.464	<0.001	44.174	<0.001	
Psych. perp.	17	0.218	-0.884-0.430	0.133-0.302	-0.051-0.486	<0.001	42.465	<0.001	
Sexual perp.	7	0.140	0.000-0.393	0.019-0.262	-0.179-0.460	0.024	12.730	0.048	
Victimization	19	0.137	-0.142-0.764	0.052-0.222	-0.155-0.429	0.002	62.020	<0.001	
Physical vic.	12	0.134	-0.109-0.764	0.034-0.234	-0.183-0.451	0.009	42.3590	<0.001	
Psych. vic.	11	0.175	0.032-0.388	0.087-0.263	-0.080-0.430	<0.001	32.214	<0.001	
Sexual vic.	5	0.119	0.021-0.628	-0.001-0.238	-0.198-0.435	0.052	6.576	0.160	
Rx skills	12	-0.066	-1.604-0.194	-0.220-0.088	-0.621-0.489	0.400	111.213	<0.001	
Knowledge	12	0.212	-0.093-0.597	0.060-0.365	-0.345-0.770	0.0066	106.150	<0.001	0.212 (0)
IPV know.	10	0.182	-0.032-0.554	0.019-0.345	-0.389-0.753	0.029	94.222	<0.001	

the findings. Taken together, there is reason to suspect that self-directed programs may have similar effects in reducing IPV.

This pattern of a non-significant moderator where one effect size was not significant repeated for college and older aged participants (d_M = 0.228, k = 10, p < 0.001; d_{HS} = 0.173, k = 27, p < 0.001; d_C = 0.075, k = 10, p = 0.364; Q = 3.103, p = 0.212), studies conducted in community settings (d_S = 0.189, k = 37, p < 0.001; d_C = 0.088, k = 10, p = 0.169; Q = 2.103, p = 0.147), and interventions with more than eight hours (d_{LD} = 0.184, k = 10, p < 0.001; d_{MD} = 0.175, k = 21, p < 0.001; d_{HD} = 0.103, k = 15, p = 0.545; Q = 0.212, p = 0.976). Another relevant finding included the fact that program focus was not a significant moderator, with no significant difference in effect sizes between programs designed to reduce IPV as compared to programs focused on broad relationship education (d_{IPV} = 0.177, k = 32, p < 0.001 ; d_{RE} = 0.159, k = 15, p = 0.028; Q = 0.056, p = 0.812), indicating that relationship education programs constitute another effective means of providing primary prevention efforts. No other moderators, including gender, setting, or intervention length, produced significant differences.

Discussion

Effectiveness of IPV Prevention Programs

In a very broad sense, this meta-analysis allows us to answer the question, are primary prevention programs for IPV working? Looking at the included studies as a whole, the aggregate of the intervention outcomes indicates a small but significant positive effect from primary prevention programs (d = 0.175, k = 47, p < 0.001). This finding is commensurate with previous meta-analyses related to IPV, which generated overall mean effect sizes of 0.19 (Edwards & Hinsz, 2014) and has important implications for IPV prevention strategies and interventions. Although the effect size is described as small, even small reductions in IPV can have a significant impact on behavior that impacts millions of people and is costly economically and

Figure 2

Trim and Fill Plot for General Success Effect Sizes

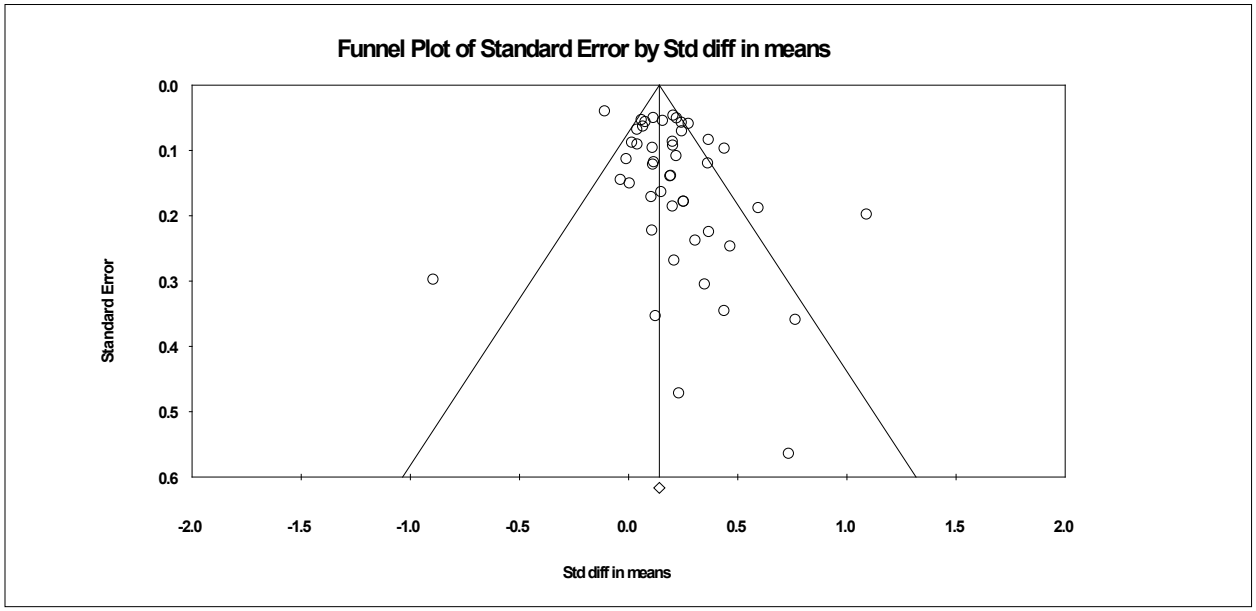


Figure 3

Trim and Fill Plot for Attitude Effect Sizes

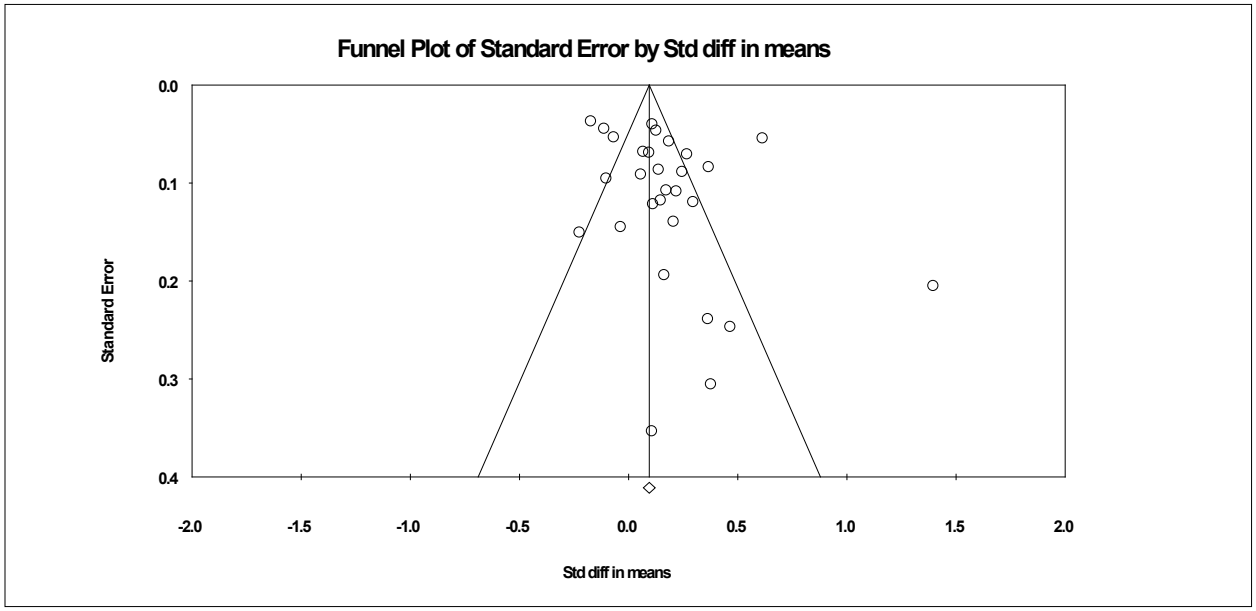


Figure 4

Trim and Fill Plot for Knowledge Effect Sizes

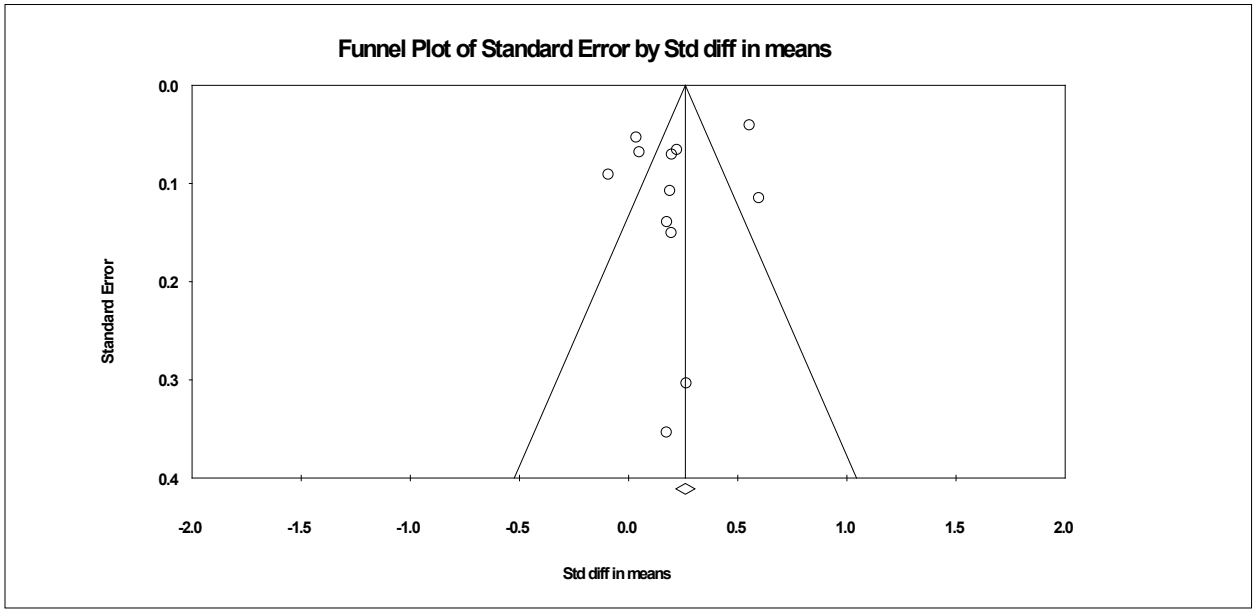
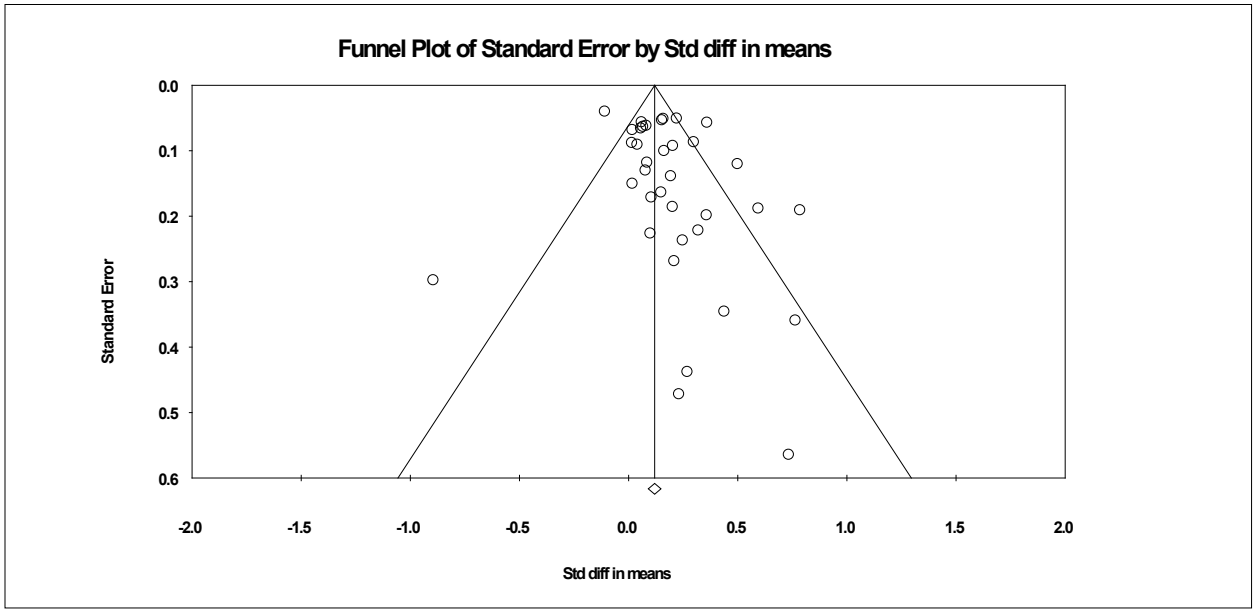


Figure 5

Trim and Fill Plot for Behavioral Effect Sizes



socially. It is also important to contextualize this effect size within the broader scope of prevention literature.

It is not uncommon to have small effect sizes in intervention studies, especially when they are targeted to more broad populations rather than occurring under research conditions where delivery is controlled. Multiple government funded programs that address early education, provide support for low-income new mothers, encourage responsible fatherhood, and address healthy couple functioning all have effect sizes that range from 0.10-0.20 (Hawkins et al., 2022). This indicates that the effect size of IPV primary prevention programs is generally in line with the effect sizes of interventions with similar delivery approaches.

Also, because the reduction of IPV involves dyadic interactions between romantic partners, it is likely that interventions will follow similar patterns to other dyadic programs. Findings suggest that couple intervention programs are particularly susceptible to low effect sizes when interventions are not tailored and they occur in field studies as opposed to laboratory trials (Bradbury & Bodenmann, 2020). These findings are likely to hold for IPV primary prevention programs, where interventions are broadly applied to reduce violent behavior (i.e., not tailored), and they occur outside of laboratory settings. Thus, it is anticipated that these general effect sizes would remain small and is not a reflection of their value.

Finally, it is important to consider the impact of IPV prevention programs related to their dosage. Thirty-one studies included programs that provided seven hours or less of intervention. Noticing significant effect sizes, even from considerably small doses of an intervention, provides hope that meaningful improvements can be made without requiring the investment of substantial resources. Prevention programs in particular may benefit from low dosage interventions, as it

Table 4

Results of Planned Moderator Analyses

Moderator	*k*	*d*	CI (Low-High)	*p*	*Q* (diff.)	*p*
Implementation Method					0.023	0.878
Facilitated	39	0.177	0.122-0.232	< 0.001		
Self-Directed	8	0.160	-0.048-0.369	0.132		
Program Focus					0.056	0.812
IPV	32	0.177	0.132-0223	< 0.001		
Relationship Ed.	15	0.159	0.017-0.302	0.028		
Setting					2.103	0.147
Community	10	0.088	-0.038-0.215	0.169		
School	37	0.189	0.138-0.240	< 0.001		
At-Risk Population					1.310	0.252
Yes	14	0.126	0.028-0.224	0.012		
No	33	0.192	0.135-0.250	< 0.001		
Gender					3.236	0.072
Mixed	34	0.204	0.139-0.268	< 0.001		
One Gender Majority	13	0.107	0.024-0.190	0.012		
Age					3.103	0.212
Middle-school Aged	10	0.228	0.151-0.304	< 0.001		
High-school Aged	27	0.173	0.115-0.231	< 0.001		
College or Beyond	10	0.075	-0.087-0.238	0.364		
Intervention Length					0.212	0.976
Low Dose (0-2 hours)	10	0.184	0.101-0.266	< 0.001		
Med. Dose (3-7 hours)	21	0.175	0.097-0.253	< 0.001		
High Dose (8+ hours)	15	0.103	-0.232-0.439	0.545		

may attract participants who are not experiencing difficulty, and would be unlikely to participate in lengthy interventions (Hawkins et al., 2004).

Beyond explaining the etiology of small effect sizes, it is also important to consider the impact of even small effect sizes. When implemented on a broader scale and targeting a larger population, even small improvements can have a cumulative impact in reducing IPV incidents. In addition, a small effect size resulting from an intervention that is effectively dosed and delivered can be more impactful than a larger effect size derived from an intervention that is impractical or inaccessible to those who need it most. Interventions with smaller effect sizes may be more scalable, affordable, or feasible to implement widely, meaning they can reach more individuals, especially those in marginalized communities or remote areas. An intervention's value should be considered in its ability to reach and positively influence the most vulnerable populations, not just its theoretical potential in controlled conditions.

Furthermore, despite producing modest effect sizes, these primary preventions can be valuable in raising awareness and stimulating discourse around the issue. These conversations can contribute to an environment where IPV is recognized as a serious concern, encouraging more individuals to seek help and support. The increased awareness can influence policy changes and inspire further research to develop more effective interventions, thereby amplifying the overall effect. Finally, improvements in individual knowledge, attitudes, and behaviors can have ripple effects that extend to interpersonal relationships, families, and communities. As people participating in IPV interventions share their experiences, the acquired knowledge and skills can be transferred to others, gradually promoting a cultural shift toward healthier, non-violent relationships. This cumulative change can contribute to breaking the cycle of violence and fostering a more supportive environment for future generations.

Attitudes, Knowledge, and Behaviors

Although the aggregated effect size is encouraging, this lacks the specificity needed to inform future practice and programmatic decisions. This trend of small but significant effect sizes holds when assessing for expected changes in attitudes, increases in knowledge, and ultimately, reduction in IPV behaviors. This leads us to an informative exploration of how these categories can effectively address IPV and how future interventions can build on these successes.

The Theory of Planned Behavior (TPB) proposes that an individual's intention to perform a certain behavior is determined by their attitude towards that behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). In the context of the findings from the meta-analysis on IPV prevention programs, TPB can provide a framework for understanding how the changes in attitudes, knowledge, and behaviors contribute to the prevention of IPV.

Attitude Towards Behavior

According to TPB, an individual's attitude towards a behavior is influenced by their beliefs about the consequences of that behavior and their evaluation of those consequences. The meta-analysis shows significant effects on attitudes related to self-efficacy, gender norms, and relationship beliefs, suggesting that IPV prevention programs might positively affect individuals' attitudes towards non-violent behaviors in relationships. These attitude changes, in turn, could make individuals less likely to engage in IPV, aligning with the TPB framework. Interestingly, these programs did not significantly impact their beliefs about violent behaviors in relationships. This suggests that the more effective attitudinal targets may be related to healthy relationship functioning and egalitarian gender roles. This corroborates the finding that relationship education programs were also effective at addressing IPV.

Subjective Norms

TPB posits that subjective norms refer to an individual's perception of social pressure to perform or not perform a behavior. The meta-analysis does not directly address subjective norms; however, the significant effects on attitudes related to gender norms and relationship beliefs may imply that these programs are influencing individuals' perceptions of societal expectations around gender roles and relationship dynamics. This change in perception could potentially affect their behavior in relationships, making them less likely to engage in IPV. In addition, participants had noted increases in their ability to navigate unhealthy relationship dynamics. The very act of addressing violent behaviors may establish a subjective expectation to avoid perpetrating or tolerating violence within romantic relationships.

Perceived Behavioral Control

According to TPB, perceived behavioral control refers to an individual's belief in their ability to perform a given behavior. The meta-analysis demonstrates significant effects on attitudes related to self-efficacy, which reflects an individual's self-rated capacity to handle circumstances of IPV. This increase in self-efficacy could improve individuals' perceived behavioral control over their actions in relationships, making them less likely to engage in or be victimized by IPV.

Knowledge

While the TPB does not explicitly mention the role of knowledge in shaping behavior, the meta-analysis findings show a significant increase in knowledge related to IPV. This increase in knowledge could potentially influence individuals' attitudes, subjective norms, and perceived behavioral control, as more informed individuals might be better equipped to understand the consequences of IPV, recognize social expectations around non-violent behaviors, and feel more capable of engaging in healthy relationship behaviors. Interestingly, increases in knowledge

about IPV were not associated with more favorable attitudes related to IPV specifically. This may indicate that learning more about IPV may not be sufficient to challenge attitudes that support dating violence. This also suggests that the attitudes necessary to target may be more related to non-violent dating behaviors.

TBP provides a parsimonious explanation for reductions in IPV across broad and discrete categories of both perpetration and victimization (i.e., physical, psychological, and sexual). It connects the changes in attitudes and knowledge to these behavioral reductions without relying on the development of new behavioral skills. This explanation is particularly useful considering the surprising finding that IPV prevention programs did not lead to significant improvements in relationship skills such as positive communication, conflict management, or emotion regulation.

Non-significant Changes in Relationship-Related Skills

The non-significant finding related to relationship skills may initially cast doubt on the connection between relationship skills and reductions in IPV. However, there are important considerations to make regarding the descriptive features of the included studies. Nearly two-thirds of the interventions were implemented over a period of seven hours or less which may not be a sufficient length to appropriately learn and employ new behavioral skills. In addition, these relationship skills are likely to occur in dyadic contexts. The current sample had very few couple interventions that met inclusion criteria. It is possible that programs which successfully lead to behavioral change in relationship skills are more likely to be identified in couple intervention programs that allow both members of the dyad to develop skills. However, learning about these behavioral skills may have contributed to feelings of self-efficacy and other attitudes that ultimately lead to decreases in IPV behaviors.

Furthermore, the fact that relationship skills did not appear to contribute to the current reduction in IPV does not mean that the successful implementation of new behavioral skills would not lead to additional decreases in IPV behaviors. Instead of viewing relationship skills as competing for the same portion of IPV reduction, it is possible that improving skills would lead to further improvements for couples related to violent behaviors. Beyond reducing violence, improvements to relationship quality may come from improved skills, another valuable target of relationship programing. Thus, these findings should not be interpreted as evidence to abandon behavioral approaches. Instead, it can be viewed as encouraging support for the idea that IPV can be reduced in low-dose interventions without requiring the acquisition of new skills.

Planned Moderator Analyses

Interestingly, statistically significant differences were not found in any of the identified moderators. Two primary moderators that extended the reach of previous meta-analyses included implementation method, and program focus. More specifically, there was not a statistically significant difference for programs that were self-directed as opposed to programs that were facilitated. This finding has important implications when considering possible intervention methods that can reach vulnerable, marginalized, and under-resourced communities.

Although there was not a statistically significant difference between the studies, self-directed studies did not have a statistically significant result on their own. It should be noted that there were a smaller number of studies ($k = 8$) with a wider range of variability (CI = -0.048-0.369) and a smaller average sample size ($n = 443$) compared to the total average sample ($N = 1003$). Ultimately, this suggests that the phenomenon has not been sufficiently studied to determine the effect of these interventions alone. In spite of this, the average effect of the included studies were not significantly different from facilitated programs. This moderator

analysis lends hope to the idea that self-directed programs can be comparable to facilitated interventions. An emphasis on assessing and implementing self-directed programs will increase confidence in future meta-analyses while allowing vulnerable populations to receive access to care. These self-directed programs should be targeted to the populations that will most benefit from their flexibility and should undergo a process of cultural tailoring to ensure it can adequately meet the needs of these groups (e.g., development with community stakeholders and pilot testing).

In another extension on previous meta-analyses, this study analyzed for differences between programs with different focuses (i.e., intended to prevent IPV, or a more broad approach to relationship education). This indicates that IPV prevention does not need to be isolated from broad relationship education programs. This also suggests that IPV prevention programs can be broadened to include general principles that may ultimately lead to improved relationship outcomes, allowing researchers to focus simultaneously on reducing harmful events, and increasing broad relationship quality.

No other moderators indicated that there were significant differences between groups (i.e., setting, at-risk population, gender, age or intervention length). In spite of this, programs implemented in community settings, with participants college-aged and older, and/or who received a high dose of intervention (i.e., eight or more hours), had nonsignificant effect sizes. This information can assist in guiding prevention efforts but are not intended to be deterministic. Multiple confounds can complicate the evaluation of moderator analyses. Community based prevention programs are not as reliably effective as school-based interventions within the current sample. However, community based programs, with less structure than school-based samples, had higher rates of attrition and smaller sample sizes. This may suggest that there is an increased

need to develop community-based interventions that are more responsive to the populations with more feasible dosages (e.g., one-time interventions). It may also suggest that community programs are targeting higher-risk and more complex participants. Similarly to the self-directed programs, further research on community-based programs will allow for more definitive evaluations of the effectiveness of these interventions.

These similar sentiments can be made related to age and intervention dose. For instance, college-age participants also had non-significant effect sizes, which may point to more complex presentations and higher levels of prior exposure. Researchers have previously highlighted the need for college-aged interventions that are more individually targeted to the individual population, including incorporating elements such as motivational interviewing, DBT, and mindfulness depending on previously identified risk factors (Shorey et al., 2012). These results may also be skewed by the reality that the risk for IPV perpetration peaks in early adulthood, during the college age (Johnson et al., 2015). In similar confounds, higher-risk and more complex participants may be more likely to receive higher dosages, complicating assessments of program effectiveness. Taken together, the nonsignificant findings in these groups should encourage further research that is more uniquely targeted to these populations.

In spite of this, the current study also highlights the importance of interventions that have demonstrated effect sizes. These include school-based interventions that target participants who are high-school aged or younger. Because programs at a low to medium dose (i.e., zero to seven hours) had significant effect sizes, it may be possible to integrate programs into school systems with short interventions (as brief as one half-hour sessions) that can have a measurable impact on IPV outcomes. Taken together, these findings should not discourage interventions for college-

aged, community-based, or high-dose interventions. However, it does indicate that school-based interventions for young students have documented success.

Theoretical Implications

These findings can also lend to the conversation surrounding the etiology and maintenance of IPV, which can inform future prevention methods. Feminist theories have purported that patriarchal gender norms underlie the presence of IPV. As such, a number of studies seek to change attitudes related to gender norms. The current set of prevention studies were able to successfully alter attitudes related to gender. In spite of this, taken altogether, IPV perpetration and victimization were reported by both men/boys and women/girls. This would indicate that although some forms of IPV may be impacted by changes in attitudes related to gender norms, there remains a significant portion of IPV that is not rooted in the power and control dynamics of the patriarchy.

Social learning theories indicate that modeling may serve to cause or maintain IPV. One method of reducing IPV associated with social learning theory is the impact of bystander effects, where peer modeling and intervention can ultimately lead to reductions in IPV. Bystander programs were broadly effective within the current sample—in aggregated outcome measures—indicating that beyond bystander behaviors, these programs impact change in attitudes and behaviors similarly to other prevention programs. This lends strength to the theory that social learning can impact IPV behaviors. Similarly, as participants develop increased confidence and intentions to intervene as a bystander, they may also be reducing their own likelihood to perpetrate or be victimized by IPV.

The vulnerability-stress-adaptation (VSA) model attempts to explain the connection between predispositions, early exposure, and environmental stressors that may lead to the

etiology of IPV and account for individuals who have not had previous exposure. Within this model, increased relationship skills should improve their capacity to handle stressful life circumstances and reduce incidences of IPV, particularly situational forms of violence. The current study found that although programs were able to reduce instances of IPV, they were not successful in changing relationship skills, either immediately or in follow-up. This surprising finding suggests that the vulnerability within the VSA model may lie in pre-conditioned attitudes and knowledge. Adjustments to these beliefs may be sufficient to reduce behaviors related to IPV.

The contextual framework seeks to ground predispositions, stress, and vulnerability within the larger ecological model, accounting for community and societal factors that might affect outcomes. The contextual model can be appraised by looking at studies that address high risk communities. Within the current sample, programs had similar success for participants who were identified as high-risk as those who were not high risk. Although it is possible that there are a number of "high-risk" participants in studies that were not designed to target them, it is unlikely that 100% of the population was high risk. In some ways this statistic is hopeful. It indicates that IPV prevention programs are having a small but significant impact on high-risk groups. However, because these populations are expected to have higher rates of IPV, it is also anticipated that successful programs will lead to more significant decreases in IPV related outcomes. This suggests that there may be ways that IPV prevention programs, or relationship education programs that address IPV, may not be sufficiently tailored to high-risk groups. Very few programs developed targeted treatments that included input from important community stakeholders. Alterations to the design of IPV prevention programs may lead to increased effectiveness for high-risk populations and lend support to the contextual framework.

Limitations and Future Directions

Although this study boasts a large sample size that is generally free from publication bias, a review of the reported studies highlights significant methodological issues that can cast doubt on the current findings. One of the major limitations identified is the almost exclusive reliance on self-report in order to document the effectiveness of programs. Although self-report is expected to measure attitudinal and knowledge-related changes, self-report is notoriously unreliable for behavioral outcomes. Particularly considering the undesirable nature of IPV, it is unlikely that individuals are accurately reporting ratings of IPV perpetration or victimization. For this reason, it is likely that these studies represent an over-estimation of reductions in perpetration and an under-estimation of victimization. In particular, changing attitudes and knowledge may increase awareness of how socially undesirable certain behaviors are and increase bias in self-reporting. Of the 47 included studies, only three studies incorporated partner report into their behavioral findings in order to corroborate experiences of perpetration and victimization. When possible, partner report should be incorporated to verify reductions in IPV.

Beyond the reliance on self-report, additional concerns related to measures may have impacted the outcomes of the current study. Of the 400 reported effect sizes, 124 relied on face-valid measures. These measures may have been as condensed as a single face-valid question. This may undermine the integrity of the findings, as it is not certain that we have fully captured the intended outcome. In addition, although the remaining outcome measures had some validation, some of these measures are notoriously unreliable (e.g., CADRI), and lacked consistency. Thus, comparisons between the various studies should be cautiously interpreted.

Even if more reliable measures were used, they may not have been consistently used across studies. Different measures were used by various authors and comparisons may be limited

by weaknesses in these measures and low correlations between them. An effort should be made by the field to determine more standard measures that can be applied across studies. These measures should be validated for various age ranges to reduce the need for authors to independently alter measures for younger populations. Furthermore, studies did not uniformly measure the same outcomes. Thus, not all studies contained a measure for attitudes, knowledge, and behaviors, and those that did contain measure of all three did not always measure them in the same way (e.g., parsing apart by victimization and perpetration or physical and psychological). Field standards for the measures being used, modified for age and cultural groups, assessing similar outcomes, would significantly improve the generalizability of these studies.

In another methodological confound, younger participants are more likely to receive school-based interventions that provide significant structure. This limits attrition and intervention fidelity concerns and may artificially inflate outcomes for younger participants. Within the current study, community-based interventions were more likely to be provided to adult samples, and both groups did not have overall significant effect sizes. This may lend towards the idea that younger participants should be targeted in favor of adult interventions, but this may be captured more adequately by the difference in community versus school programs where participants are more likely to complete interventions. Thus, these findings should be interpreted with caution. However, regardless of the methodological considerations, it is likely that issues with attrition would occur when programs are implemented outside of the research context. If drop-out occurs in community samples, this is likely to continue, and may suggest that school settings are a more appropriate environment to provide primary prevention efforts with higher treatment fidelity, and that community interventions should focus on smaller-dosage interventions less vulnerable to attrition.

Additional limitations within the current sample include gaps in the demographic features of individuals who are studied. One major limitation is that LGBTQ+ individuals are almost entirely missing from the current studies with 38 failing to even measure sexual orientation. Although nine studies reported demographic features related to sexual orientation, the vast majority of individuals within these studies reported being heterosexual. With LGBTQ+ populations estimated to be close to 20% or more, this indicates that a significant portion of the population with unique vulnerabilities is being understudied. Queer individuals are at a higher risk for experiencing IPV, and studies are categorically missing the opportunity to determine whether or not the current prevention programs will be successful for this population. This is consistent with research demonstrating that the needs of the LGBTQ+ population is not often uniquely targeted (Ford et al., 2013).

Future studies should be directed towards studying couples and individuals in queer relationships. This should be accomplished through a process of cultural tailoring that invites community stakeholders and experts to develop or revise materials to the queer population, pilot studies for the target age demographic, and ultimately evaluate them in experimentally controlled trials. The lack of material addressing the LGBTQIA+ population also highlights the fact that many "tailored" programs are using theoretically driven material without input from important community stakeholders or verifying its cultural appropriateness (Moss & Fedina, 2022). Thus, research should not simply apply existing prevention programs to queer populations, but should incorporate appropriate information into programs disseminated widely to schools and develop new programs uniquely addressing LGBTIA+ individuals.

Although the current study was intended as a primary prevention measure, the ubiquity of IPV beginning at very early ages led to significant portions of the samples having experience

with perpetration and victimization. As many as 2/3rds of middle school students had perpetrated or been victimized by minor forms of IPV at the time of the intervention in one study, indicating that the program was a better representation of secondary prevention. Given this prevalence, it may not be possible to have a sample that is purely primary in its prevention. Consideration should be given to incorporating secondary prevention programs within future analyses to assess for programmatic success in reducing future incidences of severe IPV.

Capturing the long-term efficacy primary prevention programs, particularly when they are being implemented at young ages, requires long-term follow-up. This can also inform whether or not these programs are maintaining their effect across time, or if the impact of these programs grows or diminishes. IPV is not a very frequent behavior (e.g., even if 50% of individuals experience it, most do not experience it every week). Thus, the impact of IPV prevention may grow as we capture future reductions, or we may identify that the programs only have short-term impacts. In the current sample, 15 of the 47 studies (31.91%) included a long-term follow-up, defined as one year or more post intervention. Future emphasis on capturing long-term data will help to better understand the long term impact of brief interventions or those administered to younger participants.

A final limitation for the current study relates to the diversity in IPV behaviors. IPV covers a wide range of experiences from physical and psychological aggression and violence, to sexual assault, and stalking. In order to recognize the broad themes that underlie these behaviors as a common phenomenon (e.g., gender norms, power and control dynamics, social learning, and shared vulnerabilities), I decided to include the broad spectrum of behaviors. However, this broad approach may not adequately capture the nuance between different forms of violence and aggression. For instance, the inclusion of sexual violence, which can occur between individuals

who are not in an intimate relationship, may confound programs that specifically address sexual dating violence. Furthermore, because only four studies were explicitly aimed at reducing sexual violence, this could not be considered as an independent moderator to assess for significant differences in programs that address this topic.

Strengths

Despite these limitations, the current meta-analysis boasts several unique strengths. Including 47 studies with an average sample size of 1003 participants powered the study to detect even small effect sizes in the presence of high levels of heterogeneity. Including relationship education programs that have an IPV component allowed for the inclusion of 16 studies that have not been previously combined with other meta-analyses and provided insight into successful elements of primary prevention programs. A thorough search procedure allowed for the identification of a significant number of studies that were statistically demonstrated to be largely free from publication bias. This meta-analysis was the first to specifically compare studies that are facilitated with those that are self-directed, allowing an examination of logistical elements that can assist researchers in targeting vulnerable populations.

In addition, beyond providing a robust body of literature, the implications of the current study allow us to consider implications for clinicians and educators. The high prevalence of previous exposure, in even middle school populations, indicates that clinicians should be carefully screening for the presence of IPV, and educators can assume that a number of their students/participants have had previous exposure. Safely assessing for IPV will be an important component of addressing it successfully. This study also highlights the important role of psychoeducation, which can be provided in a therapeutic or educational setting. Interventions, in as little as 30 minutes, were able to make significant impacts. It is likely that psychoeducation,

provided in the tailored environment of psychotherapy or included in workshops or classrooms, can have an identifiable impact on the prevention of IPV. As suggested in the theory of planned behavior, the attitudes, norms, and perceived control of clients and participants is a viable method of leading to behavioral change, and this can be implemented in clinical settings. Given the pervasive nature of IPV, this is an essential consideration for clinicians in both individual and couples therapy.

Conclusion

This study has highlighted the pervasive, public impact of IPV. As such, it is a public health crisis, and not simply an isolated problematic behavior occurring for a few individuals. Beyond the medical model, which suggests we target and reduce problematic behavior in a few problematic people, it is helpful to contextualize IPV within the broader systemic context. Developmental approaches to IPV, which seek to generally address norms and alter attitudes at key developmental stages, are likely to have the most profound impact to reduce the societal cost of relational agression. This study provides evidence to suggest that primary prevention programs, targeted toward the population at large, can significantly reduce the economic and social costs. Thus, the more accessible these programs are, the greater their success.

This meta-analysis has demonstrated that primary prevention programs for IPV have small but significant effects that can positively change attitudes, increase knowledge, and alter behaviors to reduce IPV. Importantly, these studies demonstrate that self-guided programs offer a promising alternative to facilitated programs that require more resources for implementation, although further research is needed to demonstrate their efficacy. These programs included interventions specifically designed to limit IPV and those that target relationship education as a whole and were effective in doses that were two hours or less. Findings suggest that these

programs may be particularly effective when provided in school settings for middle and high school students. This provides meaningful recommendations for addressing a pervasive public health crisis and prevent future catastrophic events. Emphasizing self-directed programs aimed towards younger participants may allow providers to “meet them where they scroll” to amplify impacts for particularly vulnerable populations.

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Appendix A

List of Included Studies

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