Developing a psychologically informed typology of partner violent women

By

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Abstract

Little research to date has considered the aetiological risk of female perpetrators of intimate partner violence (IPV), particularly in dating samples. This is despite evidence that shows perpetration is highly prevalent in this population. This study aims to address this gap and develops a typology of partner violent female university students using the psychopathology dimension of the Holtzworth-Munroe and Stuart (1994) typology. Online survey methodology was used to collate information from 434 participants about a range of psychological characteristics and aggression toward intimate partners in the previous twelve months. Latent Profile analysis identified three reliable subgroups of participants who differ in their level of psychopathology in comparison to Non-Violent Controls and/or each other ('Low', 'Moderate' and 'Moderate-High' Psychopathology). Chi Square analysis investigated group differences in the use of psychological aggression, physical assault and sexual coercion towards an intimate partner, and towards other people. Results show that the Moderate-High Psychopathology group use severe psychological aggression significantly more frequently than the Low Psychopathology group. Trends for minor physical violence were also found with frequency of use increasing with increases in levels of psychopathology. The classifications proxy the Holtzworth-Munroe and Stuart (1994) findings to some extent. However, it is suggested that the profiles of female perpetrators are best described in terms of varying levels of psychopathology in general, with corresponding increases in some forms of partner aggression. The need to develop typologies of female, non-clinical samples of IPV is discussed.

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Introduction

Definition, prevalence, and consequences of Intimate Partner Violence

Intimate Partner Violence (IPV) is a major social problem and has been recognised by the World Health Organisation (WHO) as a world-wide public health issue (Mandela & Brundtland, 2002). The WHO defines IPV as “behaviour within an intimate relationship that causes physical, sexual or psychological harm, including acts of physical aggression, sexual coercion, and psychological abuse and controlling behaviours” (World Health Organisation, 2010, p11). The emphasis in this definition is on describing a gender inclusive account that encompasses a variety of aggressive acts and controlling behaviours, beyond physical violence. This highlights the importance for research to focus, not only on physical assault, but on other forms of aggressive behaviour, which are often used in combination with one another (Matthew & Foshee, 2007).

The New Zealand Crime and Safety Survey (NZCASS) is a nationwide survey of nearly 7000 people over the age of 15 years, investigating individual’s experiences of crime, including in interpersonal relationships, in the preceding year. Findings demonstrate that intimate partners commit the largest proportion of violent interpersonal offences, with 6.4% of respondents reporting that they experienced a violent interpersonal offence by an intimate partner in the past year. There was no significant gender difference in the number of participants who reported having experienced a physical assault or threats and damage offences; with 3.4% of males and 4.1% of females experiencing a physical assault, and 3.6% of males and 4.6% of females reporting a threat or damage offence. Women, however,

reported having experienced significantly more sexually offences (1.6%) than men (0.6%) (Ministry of Justice, 2015).

Research suggests that IPV perpetration is more likely to be a chronic pattern of behaviour as opposed to a singular event (Marcus, 2012). Aside from injuries as a direct result of IPV, it also has indirect consequences on an individual's health. However, despite research highlighting the high prevalence of IPV for men and women, research has mostly focussed on the consequences of IPV for female victims.

Dillon, Hussain, Loxton, and Rahman (2013) conducted a review of 75 studies published between 2006 and 2012 focussing on the impact of IPV on the health of women who had experienced IPV. These included both quantitative and qualitative, cross sectional and longitudinal designs. They found that IPV has both acute and chronic health consequences, with longitudinal research showing that these health problems were a consequence of IPV. Some of these problems included cardiovascular and respiratory disorders, diabetes, gynaecological symptoms, gastro-intestinal problems, higher rates of human immunodeficiency virus (HIV), and lower self-perceived physical health. IPV was also associated with anxiety, depression, post-traumatic stress disorder (PTSD), self-harm, suicide, and sleep disorders. Data from the National Violence Against Women Survey (NVAWS) revealed that victimisation from physical violence, in the context of an intimate relationship, increased the risk of negative health outcomes such as substance use, depression and other mental illness, and chronic disease for both males and females (Coker et al., 2002).

Although the focus has largely been on female victims, recent studies have shown that males are victims of severe physical aggression at similar rates to females (Ehrensaft, Moffitt, & Caspi, 2004; Laroche, 2005), and that men who have experienced IPV have higher levels of psychological distress, depression and psychosomatic symptoms than those who have no

experience of IPV (Cascardi, Langhinrichsen, & Vivian, 1992; Simonelli & Ingram, 1998).

These findings underscore the need to examine female perpetration in greater detail.

Gender differences in IPV?

One of the most common misconceptions about IPV is that the majority of violence is perpetrated by males against females (Ali & Naylor, 2013). Gender symmetry in perpetration has been reported from multiple sources including National Surveys, such as the National Family Violence Survey, from the 1970s onwards (Douglas, McCarthy, & Hines, 2012). In a meta-analysis of studies on marital and dating violence, Archer (2000) found women were significantly more like to hit their partner, and with a greater frequency, than men. Similarly, a review by Capaldi, Knoble, Shortt and Kim (2012) found either gender symmetry or increased perpetration rates for women. One argument to account for women's use of violence is self-defence (Archer, 2000). However, research has shown the equal use of violence by males and females, and suggests women tend to initiate aggression in their relationships at either the same rate, or more frequently than men (Bland & Orn, 1986; Brush, 1990; Gryl, Stith, & Bird, 1991, as cited in Archer, 2000).

Furthermore, research has shown that the severity of violence perpetrated by females is comparable to that of males (Carney et al., 2007; Ehrensaft et al., 2004). The Dunedin Multidisciplinary Health and Development Study is a longitudinal study involving 1,037 individuals, who were born in Dunedin, New Zealand between 1972 and 1973. As part of this research, Ehrensaft et al. (2004) investigated gender differences in abusive relationships. They found non-abusive, non-clinically abusive, and clinically abusive groups based on data relating to the past three years. The clinically abusive group had perpetrated violence: had resulted in injury or medical treatment, in which the police had intervened, that had resulted

in their partner seeking help from a shelter, the courts, a therapist or a lawyer, and/or had resulted in a court conviction. The non-clinically abusive group had reported acts of physical violence, but that did not result in any of the aforementioned consequences. The proportion of females in the non-clinically abusive group was significantly higher than males, while the numbers of males ($N = 37$) and females ($N = 38$) in the clinically abusive group were almost identical.

In addition to physical violence, women have been found to exhibit more controlling behaviour in their relationships than men. In the NZCASS, men reported having experienced significantly higher levels of coercive and controlling behaviours (17%), than women (14.4%). In a study investigating gender differences in physical violence and the use of controlling behaviour in undergraduate relationships, Bates, Graham-Kevan, and Archer (2014) found controlling behaviour strongly correlated with IPV for both sexes. However, females were more likely to use physical violence and controlling behaviours in their relationships than males. Similarly, Hamel, Jones, Dutton, and Graham-Kevan (2015) tested the Controlling and Abusive Tactics Questionnaire, a gender-inclusive tool developed for measuring controlling behaviours, with clinical and community samples of males and females. They found no significant gender differences on 47 of the 62 items. However, significant differences were found for 15 of the items, with females scoring higher on nine items, such as “blames partner for all the problems in the relationship”, and males scoring higher on the remaining six items, including “controls the money”, and “excludes partner from financial decisions” (p.554).

The risk factors for IPV have also been shown to be similar for males and females (Hamel, 2009). In a review of empirical studies, 72-73% showed no significant gender differences for the risk factors of IPV (Medeiros & Straus, 2006). The authors noted that some risk factors were unique to either males or females, but concluded that the majority

were relevant to both genders. These findings are consistent with the results of a meta-analytic review of risk factors for physical partner violence, in which only three of the sixty risk factors compared were found to be significantly different for men and women (Spencer, Cafferky & Stith, 2016).

Theory and risk

Historically, research has been dominated by a gendered conceptualization of IPV (Hamel, 2007). The main assumption of this perspective is that men use violence in intimate relationships in order to maintain control over women; a contraction of society's patriarchal values (Dardis, Dixon, Edwards, & Turchik, 2015). Despite little empirical support (Graham-Kevan, 2007; Hamel 2007), this gendered analysis of IPV has been highly influential in informing both public policy and public perception (Bates et al., 2014). One criticism of the gendered perspective is that it cannot account for why all men do not perpetrate IPV, despite living in societies that endorse patriarchal values (Holtzworth-Munroe & Meehan, 2002). While patriarchal control has been identified as a risk for IPV, violence in intimate relationships is a complex problem that cannot satisfactorily be explained by a single factor (Dutton, 2006).

Dutton's Nested Ecological Theory (1995) is a multifactorial model that can account for individual differences in aggressive behaviour by considering the interaction between individual characteristics and the social context. His model involves four levels of analysis: the Macrosystem (social or cultural values e.g. patriarchy); the Exosystem (social systems e.g. peer groups); the Microsystem (situational or contextual factors); and the Ontogenetic system (individual factors e.g. cognitions, psychopathology). The factors from the four levels interact, increasing or decreasing an individual's risk of IPV (Dutton, 2006). Stith, Smith,

Penn, Ward and Tritt (2004) conducted a meta-analysis using Dutton's Nested Ecological Theory (1995) as a framework for examining risk factors of IPV, the results of which provided support for the use of multifactorial models.

Such research highlights the potential for the heterogeneity of perpetrators. Indeed, perpetrator typologies have been developed to help professionals understand the different profiles of people who use violence in intimate relationships, directing theory and treatment accordingly (Huss & Ralston, 2008).

Couple typologies

One of the most influential couple typologies was developed by Johnson (1995) to reconcile conflicting research findings, which showed high rates of bi-directional violence in community and national survey samples, but greater victimisation of women in clinical and refuge samples (Langhinrichsen-Rohling, 2009). Johnson suggested the findings highlighted qualitatively different forms of violence. He proposed four types of violence that could be differentiated by the presence or absence of controlling behaviour, and whether one or both of the partners were physically violent (Johnson, 2006). The type of violence most often reported in studies using clinical and refuge samples is characterised by one partner's use of controlling, manipulating and intimidating behaviour in conjunction with physical violence, and is termed Intimate Terrorism. Situational Couple Violence describes bi-directional violence that results as an escalation of conflict, without elements of control, and is most often seen in community samples. Violent Resistance is the term used to describe the response of one partner to an Intimate Terrorist, while Mutual Violence Control describes a situation in which both partners are Intimate Terrorists (Johnson, 2006). This typology has been highly influential, and is often cited in support of the gendered perspective of IPV

(Hamel, 2009). This is as a result of his research that showed that 97% of intimate terrorists were men (Johnson, 2006). However, Johnson's development and testing of his theory utilised samples with high rates of female victimisation, such as those from women's shelters, their male partners, or men who were involved in the criminal justice system (Straus & Gozjolko, 2014). This ultimately resulted in sampling bias, and therefore, the questionable generalisability of his findings (Graham-Kevan, 2007).

Several studies have reported results that counter Johnson's argument that men make up the majority of Intimate Terrorists. Ehrensaft et al. (2004) found no gender differences in the number of individuals in their community sample, who could be classed as intimate terrorists. Similarly, Straus and Gozjolko (2014) found similar percentages of intimate terrorists in a sample of 13,877 male and female university students.

Contrary to the gendered explanation of IPV, a multifactorial psychological perspective is a gender inclusive approach that focusses on individual factors of the perpetrator and/or victim and can provide a more comprehensive explanation for IPV (Cameranesi, 2016). These include psychopathology, personality disorders, attachment style, communication and coping styles (Ali & Naylor, 2013). One of the most highly influential psychologically based typologies (Huss & Ralton, 2008), was developed by Holtzworth-Munroe and Stuart (1994). Based on a review of male batterer typologies, Holtzworth-Munroe and Stuart (1994) hypothesised a developmental model of marital violence in order to better understand how and why men use violence in relationships. They proposed three descriptive dimensions; severity of violence, generality of violence, and psychopathology/personality disorders, could distinguish between three subtypes of male batterers. These subtypes are Family Only, Dysphoric/ Borderline and Generally Violent/ Antisocial. The subtypes are also hypothesised to differentially relate to risk factors, described as proximal and distal correlates of violence, which further help to distinguish the subtypes. Distal

correlates of marital violence include genetic/ prenatal factors, early childhood family experiences, such as witnessing and experiencing abuse, and peer experiences, including substance use, and attitudes towards women. Proximal correlates of marital violence relate to attachment, particularly dependency and empathy, impulsivity, social skills deficits, such as the inability to resolve conflict, and attitudes supportive of violence and hostility towards women (Holtzworth-Munroe & Stuart, 1994). The Family Only (FO) type is characterised by low level violence that is restricted to the family and has little or no reported psychopathology. In addition, the FO type has the fewest, and lowest levels of the distal and proximal correlates, with communication problems considered as the most salient risk factor for this type. The Dysphoric/ Borderline (DB) type engages in moderate to severe violence that is largely limited to the family. Of the three groups, the DB type are the most likely to be psychologically distressed, emotionally unstable, and exhibiting borderline personality characteristics. The DB type has a history of parental abuse and neglect resulting in an anxious attachment style, jealousy, anger, and high dependency on their partner. The Generally Violent/ Antisocial (GVA) type engages in moderate to severe marital violence, including psychological and sexual abuse. In addition, they engage in the most extrafamilial violence and have the most extensive criminal history. Furthermore, GVA men are likely to meet the criteria for antisocial personality disorder or psychopathy, have high levels of substance abuse, but low levels of psychopathology, such as anxiety and depression. The GVA type has the greatest number of risk factors, such as an association with deviant peers, violent socialisation, impulsivity, and attitudes condoning violence toward women, with IPV part of a broader pattern of antisocial and aggressive behaviour (Holtzworth-Munroe & Stuart, 1994). The inclusion of the distal and proximal correlates of violence in this model, make this a multifactorial account, which research has shown to be useful in understanding IPV (Stith et al., 2004).

In empirically testing their typology in a community sample of maritally distressed couples, Munroe, Meehan, Herron, Rehman and Stuart (2000) found support for the existing three groups, and evidence of a fourth group, which they labelled Low Level Antisocial (LLA). This group fell between the FO and GVA groups on many of the descriptive dimensions, and was similar to the initial hypothesised FO group, which was based on studies with clinical samples (Holtzworth-Munroe et al., 2000). The FO, LLA, and GVA groups were considered to be on a continuum of antisocial behaviour; however the DB group scored highest on psychopathology variables such as dependency and fearful attachment. In 2003, Holtzworth-Munroe, Meehan, Rehman, and Stuart re-tested the typology with four subtypes using a longitudinal design. Their results validated their previous work, as the groups differed as predicted at times one and three, providing evidence of the predictive utility of the typology.

Other researchers have also found results consistent with the typology proposed by Holtzworth-Munroe and Stuart (1994) (e.g. Huss & Langhinrichsen-Rohling, 2006; Langhinrichsen-Rohling, Huss, & Ramsey, 2000; Lawson et al., 2003; Waltz, Babcock, Jacobson, & Gottman, 2000). Using cluster analysis, Hamberger, Lohr, Bonge, and Tolin (1996) identified three groups: non-pathological, antisocial, and passive-aggressive dependent, in a sample of 833 male batterers, arrested for assaulting their partner, and court mandated to attend a treatment programme. They used personality scales from the Millon Clinical Multiaxial Inventory (MCMI-II) to generate the clusters, and a modified version of the Conflict Tactics Scale (CTS), self-report data and police records to externally validate them. The participants were also assessed on depression and anger. Eighty-seven percent of the sample fitted in to the three clusters. The non-pathological group perpetrated the least amount of violence, which was restricted to their partner, and had the least amount of contact with police. Similar levels of violence were reported for the antisocial and passive-aggressive

dependent groups, however, the antisocial group had more generalised violence and a higher number of police contacts.

In a further example of research supportive of Holtzworth-Munroe and Stuart's (1994) typology, Tweed and Dutton (1998) found an instrumental and an impulsive group in a sample of 79 male court mandated batterers. Tweed and Dutton (1998) used the CTS and the MCMI-II, and also measured attachment style, anger, borderline personality (separately to the MCMI-II), and trauma symptoms. A large proportion of the sample (89%) fell into one of the two groups. The instrumental group had a dismissive attachment style, and scored lower than the other group on the MCMI-II scales that measure affect, but scored higher on the narcissism scale. They also reported less trauma symptoms. There was no significant difference between the groups on the antisocial scale; however, the impulsive group scored significantly higher on the borderline, dependent, dysthymia, and anxiety scales. This group was also reported as having a fearful attachment style. The authors described these groups as similar to the DB and GVA groups from Holtzworth-Munroe and Stuart's (1994) typology.

Female typologies

Research has shown that women's violence is similar to males in terms of prevalence, frequency, severity, motivations and risk factors, highlighting that researching and attempting to address female perpetration of IPV should be equally as important as male perpetration. However, research on female perpetration is relatively scarce in comparison to males, particularly in relation to typologies (Monson & Langhinrichsen-Rohling, 2002). Typologies are most often based on adult males in the criminal justice system (Foshee, Bauman, Linder, Rice, & Wilcher, 2007). This therefore raises the question as to whether these typologies are

relevant to, and can be applied to female perpetrators, or whether female-specific typologies need to be developed.

Two studies have attempted to explain female perpetration to date. Babcock, Miller, and Siard (2003) tested a variation of Holtzworth-Munroe and Stuart's (1994) typology in a sample of 52 women referred to treatment for IPV. As some researchers have struggled to make a distinction between DB and GVA groups (Babcock et al., 2003), they chose to focus on the FO and GVA types, which they called Partner Only (PO) and Generally Violent (GV). Half of the women (50%) reported being violent towards individuals with whom they were not in an intimate relationship and were therefore classed as GV. The other 50% had been violent exclusively towards their intimate partner and were consequently classed as PO. The GV group reported greater violence towards their partners, more psychological abuse, and more instrumental use of violence, such as a means of control. They also reported more trauma symptoms, although interestingly did not have more extensive trauma histories. The GV group had more psychological problems, and were more likely to have witnessed their mother's aggression towards a partner. The authors concluded there were important differences between the groups, providing evidence of the heterogeneity of female perpetrators of IPV. However, due to the small sample size, and the fact that the authors made a conscious decision to avoid, rather than address, the issue regarding the psychopathology variable, this research does not confirm whether Holtzworth-Munroe and Stuart's (1994) typology can effectively be applied to women.

Swan and Snow (2002) developed a typology of women's use of violence in intimate relationships. Sixteen percent of their sample was court mandated to treatment, while the remaining 73% were recruited from health clinics and family court waiting rooms. The majority of the women (75%) had an arrest record, with 31% of these records relating to events in the last six months. Based on self-reports of their own and their partner's violence

and controlling behaviour, the women were classified into four groups. Thirty-four percent of participants were classed as 'victims' as they reported their partner committed more violence than they themselves committed. A 'mixed-male coercive' group characterised 32% of the sample, whereby the women were more or as equally violent as their partner, but their partner was deemed more coercive. A 'mixed-female coercive' group made up 18% of the sample, and was characterised by an equal or greater amount of violence committed by her partner, but by using more coercive behaviours herself. Only 12% were considered to be 'aggressors', committing more violence than their partner. The small number of 'aggressors' is surprising considering almost all the women reported committing moderate violence, with 57% committing severe violence, and 54% injuring their partners. It has been suggested that this is as a consequence of the authors weighting controlling behaviour the same as physical acts (Hamel, 2009). The remaining 4% of participants were unable to be classified. The authors suggest their results are evidence that women's abuse is qualitatively different to men's. However, this could be attributed to the measure that was used to assess coercive control; the Psychological Maltreatment of Women Inventory (PMWI); a tool specifically designed to measure men's behaviour towards women. Swan and Snow (2002) conclude that "women's violence needs to be understood in the context of male violence and abuse" (p. 316). The author's insistence on viewing IPV within the context of gender arguably detracts from their conclusions. As Babcock et al (2003) argue, in order to effectively address the problem of violence in intimate relationships, it is important to consider both positive and negative aspects of female behaviour and see women "as they are, not as we would wish them to be" (p. 160). Finally, this typology classifies couples on their behavioural acts only, without considering psychopathology. This needs to be considered to fully understand the aetiology of violent behaviours.

Adolescent Dating Violence (ADV)

Similar to female perpetrated IPV, adolescent relationship violence has been relatively ignored by researchers, until recently, with the majority of IPV research focussed on adult relationships (Bowen & Walker, 2015). This is despite research consistently demonstrating a negative correlation between age and physical violence, showing higher prevalence rates in younger populations (Bowen & Walker, 2015; Capaldi et al., 2012; Straus, 2004). There have been difficulties in establishing a consensus with regard to prevalence rates due to methodological issues, such as the timeframe over which the behaviour is measured, and the differences in the ages of samples (Bowen & Walker, 2015; Zweig, Yahner, Dank & Lachman, 2014). However, despite these differences, studies have shown that ADV is a problem that affects a considerable proportion of young people (Matthew & Foshee, 2007). As part of the International Dating Violence Survey, Straus (2004) investigated the prevalence and gender differences of physical violence in dating relationships of 8,666 university students in 31 universities, in 16 countries. Two of the universities taking part in this research were in Christchurch, New Zealand. The overall assault perpetration in the New Zealand sample was 26.6%, with 16.7% of males and 29.2% of females perpetrating violence in their relationships. The severe assault rate was 10.6% (total), with 4.2% of males and 12.4% of females severely assaulting their partners. Minor assault is defined as pushing, twisting their partner's arm or hair, and slapping. Severe assault includes acts such as the use of a weapon, punching, choking, burning, and kicking (Straus, 2004). These results clearly demonstrate the pervasiveness of violence in the relationships of young people, and that females are not only committing more violence than males, but that they are also committing violence of a more severe nature than males. These results are consistent with more recent research which also reported higher levels of female perpetrated violence in adolescent or young adult samples (Capaldi et al., 2012; Dardis et al., 2015;

Kelley, Edwards, Dardis, & Gidycz, 2015; Luthra & Gidycz, 2006; Reidy et al., 2016; Straus, 2008; Thornton, Graham-Kevan, & Archer, 2016).

Adolescent dating violence (ADV) is very similar to adult IPV in terms of the types of violence perpetrated, and an individual's experiences of violence (Zweig et al., 2014). In addition to the aforementioned negative outcomes of IPV, studies have shown that violence has specific consequences in adolescent relationships. ADV affects academic success, reduces self-esteem, increases depression and substance use, and the likelihood of using violence in the future (Stith, Jester, & Bird, 1992). Furthermore, research shows that violence used in one relationship, increases the likelihood of both future perpetration and victimisation (Renner & Whitney, 2012), and the use of one form of violence, such as physical violence, also increases the probability of using another form, such as sexual violence (Matthew & Foshee, 2007). A major concern for this age group is that the use of violence has a negative impact on healthy intimacy (Foshee et al., 2009) and is a risk factor for IPV in later life (O'Leary, Tintle, & Bromet, 2014).

Although ADV shares some of the same risk factors as IPV, such as anger (Thornton et al., 2016), substance use, and personality disorders (Spidel, Greaves, Nicholls, Goldenson, & Dutton, 2013), it has been suggested that dating relationships, and experiences of violence within them, are unique from marital and cohabiting relationships, and therefore warrant separate perpetrator typologies (Stets & Straus, 1989).

ADV typologies

Several researchers have developed typologies of perpetrators of ADV in an attempt to better understand the relationship dynamics of young adults. Stith et al. (1992) investigated whether undergraduate university students ($N=161$) who reported using violence in their

intimate relationships differed on coping strategies, negotiation styles and the relationship dimensions of love, maintenance, ambivalence and conflict. Cluster analysis revealed four subtypes: stable minimisers, hostile disengaged, hostile pursuers, and secure lovers, who differed on the aforementioned dimensions. This typology was one of the first to be developed for this age group, and the results reveal the within-group diversity of adolescent perpetrators and demonstrate the capability of classifying them into subtypes.

Foshee et al. (2007) conducted qualitative research with 13-14 year old males and females, studying their motivations for using violence in their dating relationships ($N=96$). They identified four types of violent perpetration for females. The first, they termed a patriarchal terrorism response, which refers to a typology developed by Johnson (1995). This type of violence is in response to their partner's violence and controlling behaviour. They also identified an anger response, and an ethic response, which involved using violence to let their partner know he has done something wrong, and a first time aggression response. Foshee et al. (2007) only identified one type of violence perpetration for males: escalation prevention. The rest of the acts of violence described by the males were too varied to enable them to be categorised. Their research shows the complexity of ADV perpetration, and provides further evidence that the principal focus on male perpetration is misguided. However, neither this study, nor the Stith et al. (1992) study has been replicated, and therefore the typologies are untested. This, in conjunction with their small sample sizes, brings the practical value of the research into question.

Other researchers have stated adolescent's experiences of violence are similar to those of adults (Zweig et al. 2014), therefore justifying the application of existing typologies that have been well replicated in adult samples (Holtzworth-Munroe et al., 2000; 2003; Johnson, 2006; Tweed & Dutton, 1998), to adolescent samples. Zweig et al. (2014) investigated whether Johnson's typology, which was developed to classify perpetrators of adult partner

violence, could be applied to an adolescent sample. In Zweig et al.'s (2014) sample of 13-18 year olds, one third of the participants reported using violence in their dating relationships in the past year. Using hierarchical cluster analysis, 80% were classed as situational couple violence, 11% were identified as intimate terrorists, 6% were violent resistant, and 4% were mutual violent control. These results are similar to previous research using Johnson's typology in both adult (Graham-Kevan & Archer, 2003; Johnson, 2006) and adolescent samples (Messinger, Frye, Rickert, Catallozi & Davidson 2012, as cited in Zweig et al., 2014). Consequently, Zweig et al. (2014) concluded Johnson's typology was a framework that could be applied to ADV.

Similarly, Monson and Langhinrichsen-Rohling (2002) tested the validity of their previously developed typology of sexual and non-sexual violent individuals, in a heterosexual undergraduate sample. This typology was strongly based on that of Holtzworth-Munroe and Stuart (1994), which describes three types of male batterer: Relationship Only, Dysphoric/Borderline, and Generally Violent/ Antisocial, with the addition of a fourth hypothesised type: Sexually Obsessed. The groups were clustered on the CTS, arrest records and a sexual assault measure, and validated with a range of both interpersonal and intrapersonal variables, such as psychopathology, attachment style, anger, jealousy and depression. Their results failed to find sufficient evidence to support their hypothesised sexually obsessed type. However, the study provided support for the Holtzworth-Munroe and Stuart (1994) typology, and demonstrated it was also relevant to a sample that was nonclinical, young, and comprised of both males and females.

Study objectives

In spite of the increasing amount of research in the past decade acknowledging the problem of ADV and female perpetration, there have been few typologies developed for this population, limiting advances in understanding the aetiological risk of female dating violence. Indeed, Knight and Prentky (1989) believe that “understanding the taxonomic structure of a deviant population is the keystone of theory building and the cornerstone of intervention” (p. 23), highlighting the importance of taxonomy development for practice. Although there have been perpetrator typologies developed for adolescents (Foshee et al., 2007; Reidy et al., 2016; Stith et al., 1992) and females (Swan & Snow, 2002), they have been created using small samples, and have most typically been based on behavioural acts of the couple. Typologies of male offenders are, however, well advanced (e.g., Holtzworth-Munroe & Stuart, 1994; Holtzworth-Munroe et al 2000). Considering that the evidence suggests there are many similarities in the risk factors for aggression for men and women (Babcock et al., 2003; Monson & Langhinrichsen-Rohling, 2002; Zweig et al., 2014), using the information gleaned from typology research with male offenders is a viable starting point for investigating female taxonomies. This study explores the role of factors identified in male taxonomy research in understanding female university student’s IPV perpetration. Specifically, it will test the possibility of developing a typology of female IPV perpetrators using psychopathology variables identified in the adult male literature.

Method

Participants

The participants were 434 female, undergraduate, psychology students. The mean age of the sample was 19.1 years ($SD=1.36$). Sixty-three percent of participants identified as European ($N=274$), 15% as Maori ($N=65$), 7% as Pacific Peoples ($N=30$), 7% as Asian Peoples ($N=30$), and 8% as Other ($N=35$). Thirty percent of participants identified with more than one ethnic group. The inclusion criteria required participants to be between 17-23 years and to have been in a heterosexual, dating relationship for at least one month in the previous 12 months. Those individuals who were over the age of 23 years ($N=5$), and those who stated they were either married or in a cohabiting relationship ($N=33$) were removed from the dataset. Eighty nine percent of participants identified as heterosexual ($N=388$), while the remaining 11% identified as bisexual ($N=46$). The purpose of the research was explained, and the participants provided informed consent and were assured that their participation was voluntary, anonymous, and that their data could be withdrawn from the study before a specified date.

Procedure

The study was advertised through Sona System software, which is linked to Victoria University of Wellington's Introduction to Psychology Research Programme (IPRP) and via Blackboard, a web based course management system for students at Victoria University. There were three versions of the questionnaire, in which the order of the presentation of the different measures was altered to control for order effects. Participants were randomly assigned to one of the three conditions. Participants were first presented with an information and consent sheet, which included the web addresses and phone numbers of free helplines attached to services for people experiencing trauma and/ or IPV. They were then directed to

the questionnaire, which was designed using Qualtrics, an online survey tool. Participants were asked to complete the questionnaire in reference to a current or recent heterosexual relationship, occurring within the last 12 months.

The survey took approximately 30-45 minutes to complete. Participants were asked to complete the questionnaire alone, in a quiet place, and were required to answer each question before progressing to the next. They were then presented with a debrief sheet, which reiterated the details of the helplines and support organisations. Participants either received course credit towards a mandatory course research component ($N=369$), or were awarded a \$10.00 supermarket voucher ($N=65$), by reporting to the author's office at set times and dates. The confidentiality of responses was assured, as identifying information was not able to be accessed. This project sought and gained ethical approval from the Victoria University School of Psychology Human Ethics Committee.

Measures

Holtzworth-Munroe et al. (2000) entered variables relating to all three descriptive dimensions (severity, generality of violence and psychopathology) outlined in the model (1994), into their cluster analysis. Arguably, their procedure enters predictor and outcome variables into the same model. In line with the majority of aggression literature (e.g. Ali & Naylor, 2013; Dutton, 2007; Magdol, Moffitt, Caspi, Newman, & Fagan, 1997; Tweed & Dutton, 1998) we have chosen to devise a typology using just the predictor variables of psychopathology. Variables associated with the severity and generality of violence were used to externally validate these profiles. Furthermore, it was expected that there would be much lower levels of severe violence in the current non-clinical sample than that of Holtzworth-Munroe et al. (2000). Therefore, it was assumed violence variables would not discriminate as well between profiles as measures of psychopathology.

The specific measures were selected for their availability, reliability, number of items and relevance to the sample. Participants also provided demographic information, such as their ethnicity, employment status and course of study.

Psychopathology

The psychopathology dimension of the Holtzworth-Munroe and Stuart (1994) typology included personality disorders, anger, depression and substance abuse. Table 1 shows how these variables load onto the three types identified by Holtzworth-Munroe and Stuart (1994). Based on the studies of Babcock et al. (2003) and Monson and Langhinrichsen-Rohling (2002), it is hypothesised that the groups identified by the Latent Profile analysis will have a similar distribution of psychopathology variables to those subtypes proposed by Holtzworth-Munroe and Stuart (1994).

Table 1

Hypothesised distribution of variables for each profile based upon the Holtzworth-Munroe and Stuart (1994) typology.

Variables	Family Only	Generally Violent	Dysphoric/ Borderline
Antisocial personality	N/A	High	N/A
Borderline personality	N/A	N/A	High
Anger	Moderate	Moderate	High
Depression	Low/ Moderate	Low	High
Substance use	Low/ Moderate	High	Moderate
Severity of violence in relationship	Low	Moderate/ High	Moderate/ High
Generality of violence outside of relationship	Low	High	Low/ Moderate

When testing their typology, Holtzworth-Munroe et al (2000) used a composite measure comprised of the Borderline, Antisocial and Dependent Personality Disorder scales taken from the Millon Clinical Multiaxial Inventory (MCMI-III). However, the MCMI-III is not designed to be used with non-clinical samples, and in addition, is not recommended for use with individuals under the age of 18 years (Pearson, 2016). Therefore, due to the composition of our sample, which was non-clinical and included some 17 year olds, the MCMI-III was deemed unsuitable. The Personal and Relationships Profile (PRP) consists of 25 short subscales measuring individual and relationship-level variables, which research has shown to be correlated with IPV. All items use the response categories 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree. This measure has shown to be reliable in both the general population and in student samples, and was used in the International Dating Violence Survey (IDVS); a study involving 17,404 students from 68 universities in 32 nations (Straus, Hamby, Boney-McCoy, & Sugarman. 1999). Subscales of the PRP (Straus et al., 1999) were therefore used to assess borderline personality disorder, depression, and substance use in the current study.

Borderline personality

The borderline subscale (DeVoe, Straus, & Mouradian, 1999, as cited in Straus et al., 1999) of the PRP was used to measure Borderline Personality Disorder. This subscale has nine items, incorporating features from the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (Straus et al., 2010), and was included in the current study to identify the Dysphoric/ Borderline type. The alpha level for the IDVS sample is .76 (Straus et al., 1999). In the current study the alpha level was .84.

Depression

Dysphoric/ Borderline batterers were hypothesised by Holtzworth-Munroe et al. (1994) to have higher scores of depression than the other groups. Although Holtzworth-Munroe et al. (2000) did not test this aspect of the 1994 hypothesis, the current study measured depression scores using the depressive symptoms subscale (Boney-McCoy, Hamby, Straus, & Sugarman, 1999, as cited in Straus et al., 1999) of the PRP, whose eight items have been shown to moderately correlate with the Becks Depression Inventory (Straus et al., 1999). The alpha level for the IDVS sample was .83 (Straus et al., 1999), and .88 in the current study.

Substance abuse

Holtzworth-Munroe et al. (1994) predicted that the GVA type would score higher than the other groups on substance abuse. They assessed substance abuse using four measures evaluating both alcohol and drug use. The substance abuse subscale (Kaufman-Kantor, Straus, Mouradian, DeVoe & Pooler, 1999, as cited in Straus et al., 1999) from the PRP was used in this study. This subscale has eight items assessing alcohol and other drug use, and any resulting impairment. The alpha level for the IDVS sample is .81 (Straus et al., 1999), and .81 in the current study.

Antisocial personality

In addition to the composite MCMI-III measure, Holtzworth-Munroe et al. (2000) used supplementary antisocial behaviour measures to help to distinguish the Generally Violent Antisocial type. These included the Psychopathy Self-Report Checklist - Revised, a version of the Psychopathy Checklist - Revised (PCL-R) and arrest records. As the current

study didn't have access to information such as arrest records, antisocial personality was assessed using the Antisocial Process Screening Device – Self Report (APSD-SR). This is a 20 item self-report version of the APSD (Frick & Hare, 2001), designed to assess three dimensions associated with psychopathy; callous-unemotional traits, narcissism and impulsivity, in youth, and is conceptually similar to the PCL-R (Munoz & Frick, 2007). Although originally designed to assess antisocial traits in adolescents, a recent study in the United States has confirmed the validity of this measure in a university sample (Goodwin, Sellbom, & Salekin, 2015). Respondents are asked how well a particular statement describes them: 0 = not at all, 2 = definitely true. There are five reverse scored items. The alpha level in the aforementioned study was .70, and .66 in the current study. Cronbach alpha values of 0.7 are generally considered to be acceptable, however, Kline (1999) states that due to the diversity of psychological constructs, values below 0.7 should be expected.

Anger

The Buss Perry Aggression Questionnaire (Buss & Perry, 1992) is considered to be the gold-standard for the measurement of aggression, and has been well validated, particularly within college samples (Gerevich, Bácskai, & Czobor, 2007). The anger subscale, which was used in the current study, has 7 items, which are statements respondents rate on a Likert scale ranging from 1=extremely uncharacteristic of me to 5 =extremely characteristic of me. This measure was recently used in study investigating gender differences in risk factors for IPV in a sample of university students in the United Kingdom (Thornton et al., 2016) The reliability of this measure in this study and the current study was 0.83. Anger is used to differentiate between the three types of batterer, as the Dysphoric/ Borderline group is proposed by Holtzworth-Munroe and Stuart (1994) to have the highest levels.

Severity and types of aggressive behaviour***IPV: Psychological aggression, physical assault, and sexual coercion***

The Conflict Tactics Scale (CTS) (Straus, Hamby, Boney-McCoy, & Sugarman, 1996) and the Revised Conflict Tactics Scale (CTS2) are the most widely used tools to assess intimate partner violence (Straus & Douglas, 2004). They have proven to be valid and reliable in identifying physical and psychological abuse in relationships across different populations (Straus et al., 1999). The CTS measures the mutuality, severity and frequency of psychological, physical, and sexual IPV that individuals might have experienced within the context of an intimate relationship in the past 12 months, or in their relationship history (Straus & Douglas, 2004). Items include those such as “I punched or kicked or beat-up my partner” and “My partner used force (like hitting, holding down, or using a weapon) to make me have sex” to which participants respond on an 8-point scale (1 = once in the past year to 8 = this has never happened) (Straus & Douglas, 2004). The CTS2 was used by Holtzworth-Munroe et al. (2000) to assess frequency and severity of partner violence when testing their proposed 1994 typology of male batterers. It was also used by Babcock et al. (2003) in their study investigating the differences between partner-only and generally violent female perpetrators of IPV. In both studies, the GVA type was predicted and was found to perpetrate the most frequent and severe forms of violence (Holtzworth-Munroe et al., 2000; Babcock, et al., 2003), distinguishing them from the FO and DB groups.

The CTS2-Short Form (CTS2S), which was used in the current study to assess severity of violence, is a 20 item questionnaire based on the CTS2 that has comparable concurrent and construct validity to the full 78 item scale (Straus & Douglas, 2004). Internal consistency cannot be evaluated as the CTS2S is made up of subscales, which are not

designed to be summed to provide a total score. Furthermore, as each scale consists of only two items, it is not appropriate to calculate reliability coefficients (Straus & Douglas, 2004).

Violence outside of intimate relationships

Holtzworth-Munroe and Stuart (1994) hypothesised that the level of violence outside of the context of an intimate relationship could distinguish between the three types of perpetrator. They predicted that the FO group would engage in low levels of extrafamilial violence, the BD batterer would engage in low-medium levels, while the GVA group would have high levels of extrafamilial violence. Holtzworth-Munroe et al. (2000) did not use a standard measure to assess generality of violence, instead they designed a measure which they labelled the Generality of Violence Questionnaire. As part of this questionnaire, participants were asked whether they had behaved in certain ways toward different categories of people, including family members, acquaintances and strangers. The behaviours were items taken from the CTS2. The Conflicts Tactics Scale for Others (CTS-O) is a modified version of the CTS2- Short Form and was used to assess the generality of violence in the current study. The questions were re-worded to tap into aggression directed towards family members, acquaintances and strangers, as opposed to intimate partners, such as “I pushed, shoved, or slapped a family member, acquaintance, or stranger”. The CTS-O was utilised in research by Huss and Langhinrichsen-Rohling (2006), and Huss and Ralston (2008). The CTS-O was used in the current study due to the small number of items (10), and their similarity to the CTS2-Short Form and the Generality of Violence Questionnaire. Reliability estimates could not be calculated for the CTS-O for the same reasons outlined for the CTS2S.

Treatment of data

Step 1

Latent Profile Analysis (LPA) was used to identify latent profiles within the sample based upon the measures related to the psychopathology dimension of Holtzworth-Munroe and Stuart's (1994) typology; antisocial personality, borderline personality, depression, substance abuse, and anger. LPA is a type of mixture modelling, used to identify subgroups within heterogeneous populations based on observed variables. It is a technique, which is therefore useful in the creation of typologies (Kim & Muthen, 2009; Tein, Coxe, & Cham, 2013). Analysis was conducted using Mplus software (Version 7.4) (Muthén & Muthén, 2015). The number of profiles is determined by comparing the relative fit statistics generated by Mplus, while accounting for theoretical considerations (Isler, Liu, Sibley, & Fletcher, 2016; Nagin & Tremblay, 2005). Five one-way between groups analyses of variance (ANOVA) were then conducted to examine the differences on the psychopathology measures between the profiles using a Games-Howell post-hoc procedure.

Step 2

The participant's patterns of aggressive behaviour as determined by the CTS2 and CTSO were used to externally validate the profiles created by the LPA. Participant responses on the CTS2 and CTSO are coded as 1 = has happened once in the past year, 2 = twice in the past year, 3 = 3-5 times in the past year, 4 = 6-10 times in the past year, 5 = 11-20 times in the past year, 6 = more than 20 times in past year, 7 = not in the past year, but it has happened before, and 8 = this has never happened. However, this study was only interested in behaviour that had occurred in the last 12 months, therefore, the items were recoded to exclude aggressive behaviour that had not occurred in the past year (0= never happened, or happened outside of the set timeframe; 1 = has occurred in the past 12 months). Chi square

tests for independence were then conducted to investigate the differences in aggressive behaviour between profiles. One of the assumptions of chi square analysis is the number of expected frequencies in each cell must be greater than five (Field, 2013). For one of the tests, this assumption was violated, and the Fishers exact test was used in this instance. Due to the number of tests conducted, a Bonferroni correction was adopted to control for Type one error.

Results

Sample descriptives

Table 2 shows the number of individuals who reported perpetrating minor and severe acts of psychological aggression, physical assault, or sexual coercion. These categories are not mutually exclusive, and it is indeed likely that some individuals perpetrated both minor and severe acts within the same subscale, therefore columns do not add up to 100%. Only individuals who reported committing at least one act on at least one of the subscales were included in the Latent Profile Analysis ($N=352$). The exclusion of non-violent participants ($N=82$) in the creation of a perpetrator typology is consistent with previous studies, such as Holtzworth-Munroe et al. (2000) and Monson and Langhinrichsen-Rohling (2002).

Table 2

Frequency of occurrence of minor and severe acts against intimate partners and other people (N=434)

CTS Subscale	Frequency of occurrence					
	Intimate partner			Others		
	Minor N (%)	Severe N (%)	None N (%)	Minor N (%)	Severe N (%)	None N (%)
Psychological aggression	245 (56.5)	45 (10.4)	186 (42.8)	281 (64.7)	47 (10.8)	152 (35)
Physical assault	80 (18.4)	30 (6.9)	353 (81.3)	77 (17.7)	42 (9.7)	356 (82)
Sexual coercion	45 (10.4)	26 (6)	389 (89.6)	25 (5.8)	32 (7.4)	402 (92.6)

Step 1: Generating a typology using variables of psychopathology**Latent Profile analysis results**

It is recommended that theoretical considerations should be involved in selecting the number of profiles in a model (Isler et al., 2016; Nagin & Tremblay, 2005). Consequently, two, three, and four cluster solutions were considered based on studies that have found support for either two (Babcock et al., 2003; Tweed & Dutton, 1998), three (Hamberger et al., 1996; Monson & Langhinrichsen-Rohling, 2002; Waltz et al., 2000), or four (Holtzworth-Munroe et al., 2000, 2003) subtypes. No standard exists for determining the correct number of profiles in LPA (Tein et al., 2013). A combination fit statistics generated by Mplus are the most commonly used fit and model selection criteria (Tein et al., 2013). These statistics include information-theoretic methods, Likelihood ratio statistical tests, and entropy based measures (Tein et al., 2013). In the current study, the fit of the models was compared using Akaike's Information Criterion (AIC). This is an information-theoretic method, with smaller values indicating a better fit to the data (Isler et al., 2016). Likelihood ratio statistical tests are another method of evaluating model fit. These include the Bootstrap Likelihood Ratio Test (BLRT), which was used in the current study. Small p values (e.g. $p < .05$) indicate that the current solution is a significantly better fit to the data than a hypothetical model with one less profile (Isler et al., 2016). Entropy is a measure of posterior probability that shows the level of distinction between profiles. Entropy scores are on a scale between zero and one, with scores of 0.8 indicating high levels of discrimination, 0.6 as medium, and 0.4 as low discrimination between profiles (Tein et al., 2013). Table 5 shows the fit statistics generated by Mplus for two, three and four profile solutions. The AIC decreased with the adding of each new profile suggesting a better fit to the data. Although the AIC may have continued to decrease with additional profiles, it did not make theoretical sense to investigate higher numbers of profiles. The BLRT was also considered, the value of which was statistically

significant for all possible solutions. The relative entropy scores for the two, three and four profile solutions indicated a medium level of discrimination, but entropy was highest for the four profile solution. Consequently, this model was selected as the best fit for the data.

Table 3
Model fit statistics: 2, 3, and 4 profile solutions

Number of profiles	AIC	BLRT	Entropy	Class	N	%
				1	115	32.7
2	9974.56	0.01	.61	2	199	56.5
3	9963.49	0.000	.60	3	36	10.2
4	9953.76	0.04	.68	4	2	0.6

AIC = Akaike Information Criteria. BLRT = Bootstrap Likelihood Ratio Test.

Description of profiles

The LPA resulted in four distinct profiles of partner violent women: Low (LP), Moderate (MP), Moderate-High (MHP) and High Psychopathology (HP), as illustrated in Figure 1. It is clear from this figure that the profiles differ in scores on each of the psychopathology variables. Therefore, each group is labelled according to their levels of psychopathology relative to the Non-Violent Control Group (NVC). The NVC Group is comprised of 82 individuals who did not endorse any of the items on the CTS2 or CTS-O. This group has been added to Figure 1 to provide a comparison for scores obtained by the aggressive groups. Profile four contained only two people. This small sample size limits the statistical analysis that can be performed with this group and therefore it was excluded from further analyses.

Figure 1. Mean psychopathology scores of the four profiles generated by the Latent Profile analysis, and the mean scores of the non-violent group.

Differences between groups on the psychopathology variables.

Five one-way between groups analyses of variance (ANOVA) were conducted to examine the differences between the three profiles and the non-violent control group on the psychopathology variables of interest. The results, shown in Table 4, show significant differences for all the variables, namely: antisocial personality [$F(3, 122.48) = 26.70, p < .001$], borderline personality [$F(3, 131.50) = 260.31, p < .001$], anger [$F(3, 124.96) = 63.42, p < .001$], depression [$F(3, 428) = 4.32, p = .05$], and substance use [$F(3, 428) = 24.41, p < .001$].

Due to the relatively smaller size of the M/HP profile, the Games-Howell post-hoc procedure was used to control for unequal sample sizes and unequal variances. The results from this test show that there were statistically significant ($p < .05$) differences in scores between all the groups on antisocial personality traits, with the exception of the MP ($M = 34.23$, $SD = 4.42$) and M/HP ($M = 35.67$, $SD = 6.60$, $p = .59$) profiles.

Similarly, the results for borderline personality traits show statistically significant ($p < .001$) differences for all groups, except for the LP profile ($M = 13.37$, $SD = 3.17$) and NVC group ($M = 14.44$, $SD = 4.27$, $p = .22$).

The anger scores were statistically significant between: the LP ($M = 13.37$, $SD = 3.11$) and the MP ($M = 18.16$, $SD = 3.68$, $p < .001$) and the M/HP ($M = 20.11$, $SD = 4.80$, $p < .001$) profiles, and the NVC group ($M = 14.27$, $SD = 4.04$) and the MP ($p < .001$) and the M/HP ($p < .001$) profiles. There was no significant difference in scores for the LP profile and the NVC group ($p = .33$), or the MP and M/HP ($p = .11$).

There were no significant differences between the profiles on depression scores, with the exception of the MP ($M = 20.38$, $SD = 2.29$) and M/HP ($M = 21.89$, $SD = 2.58$, $p = .011$) profiles.

There were significant differences between all groups on substance use scores, except between the Low Psychopathology profile ($M = 12.51$, $SD = 3.77$) and the NVC group ($M = 12.28$, $SD = 3.96$, $p = .98$).

Table 4

Comparisons between profiles on psychopathology variables

Variable	LP		MP		M/HP		NVC		<i>F</i>	η^2
	<i>M (SD)</i>	95% CI	<i>M (SD)</i>	95% CI	<i>M (SD)</i>	95% CI	<i>M (SD)</i>	95% CI		
Antisocial personality	29.63 (4.80)	[28.75, 30.52]	34.23 (4.14)	[33.61, 34.84]	35.67 (6.60)	[33.43, 37.90]	31.67 (5.34)	[30.50, 32.84]	26.70 ^{abcef**W}	0.16
Borderline personality	13.37 (3.17)	[12.78, 13.95]	19.73 (3.24)	[18.91, 19.82]	28.17 (2.87)	[27.19, 29.14]	14.44 (4.27)	[13.50, 15.38]	260.31 ^{abdef**W}	0.60
Anger	13.37 (3.11)	[12.79, 13.94]	18.61 (3.68)	[17.65, 18.68]	20.11 (4.80)	[18.49, 21.74]	14.27 (4.04)	[13.38, 15.16]	63.42 ^{abef**W}	0.30
Depression	20.76 (2.27)	[20.34, 21.18]	20.38 (2.29)	[20.06, 20.70]	21.89 (2.58)	[21.01, 22.76]	20.58 (2.63)	[20.27, 21.43]	4.32 ^{d*}	0.03
Substance use	12.51 (3.77)	[11.82, 13.21]	14.23 (4.03)	[13.67, 14.79]	18.28 (3.93)	[16.95, 19.61]	12.28 (3.96)	[11.41, 13.15]	24.41 ^{abdef**}	0.15

Note: CI = confidence interval. ^W = Welch's F, used for violations of Levene's test of homogeneity of variance. η^2 = eta squared. * $p < .05$. ** $p < .001$.

LP = Low Psychopathology; M = Medium Psychopathology; HP = High Psychopathology; NV = Non Violent

^a = Contrast between LP and MP was significant; ^b = Contrast between LP and M/HP was significant; ^c = Contrast between LP and NV was significant

^d = Contrast between MP and M/HP was significant; ^e = Contrast between MP and NV was significant; ^f = Contrast between M/HP and NV was significant

Table 5

Actual distribution of psychopathology and aggressive behaviour variables for each profile

Variables	LP	MP	M/HP
Antisocial personality	Low	High	High
Borderline personality	Low	Moderate	High
Anger	Low	Moderate	High
Depression	Low	Low	Moderate
Substance use	Low	Moderate	High
Psychological aggression Severe (partner)	Low	Moderate	Moderate/ High

LP = Low Psychopathology; MP = Medium Psychopathology; M/HP = Medium/ High Psychopathology

Table 5 shows the actual distribution of psychopathology variables across the LP, MP, and M/HP profiles in this sample. A profile was described as ‘high’ on a particular psychopathology variable if it was significantly higher than all of the other groups, or was equally as ‘high’ as another group in comparison to the (NVC) group (i.e. no significant difference in high scores between two groups). A profile was considered to be ‘moderate’ if it scored significantly higher than one profile yet significantly lower than another. A profile was labelled as ‘low’ when its score was significantly the lowest score of all three groups.

Step 2: Differences between groups on types of aggressive behaviour

Six chi square tests for independence were conducted to examine group differences in aggressive behaviour towards an intimate partner between the Low, Medium and Medium/ High Psychopathology profiles. To control for increased type one error with six tests, a Bonferroni correction procedure was employed, reducing the alpha to 0.008.

The results depicted in Table 6, show there were significant differences in the frequency with which the LP, MP, and M/HP groups perpetrated severe psychological aggression [$\chi^2(2, N = 350) = 9.8, p = .007$]. However, the effect size was small. No other significant differences were found, although a trend for differences in minor physical assault was noted.

A further three chi square post-hoc analyses were run between groups to ascertain which profiles were statistically significant from one another. There was a significant difference between the LP and M/HP groups [$\chi^2(1, N = 151) = 10.35, p = .003, phi = .26$], but not between either the LP and MP [$\chi^2(1, N = 314) = 4.22, p = .04, phi = .11$], or MP and M/HP [$\chi^2(1, N = 235) = 3.07, p = .08, phi = .11$] groups. A more conservative Bonferroni adjusted alpha value ($\alpha = 0.01$) was also adopted for these analyses to account for increased type one error with three tests.

Six chi square tests for independence were conducted to examine group differences in aggressive behaviour towards other people between the Low, Medium and Medium/ High Psychopathology profiles, the results of which are depicted in Table 7. A new alpha of .008 was used to correct for Type one error. However, no significant group differences were found.

Table 6

Frequency of minor and severe acts perpetrated by the three profiles against their partner

	LP (N=115) N (%)	MP (N=199) N (%)	M/HP (N=36) N (%)	χ^2	<i>p</i>	<i>phi</i>
Psychological aggression						
Minor	76 (66.1)	140 (70.4)	27 (75.0)	1.21	.55	.59
Severe	7 (6.1)	27 (13.6)	9 (25.0)	9.80*	.007	.17
Physical assault						
Minor	15 (13.0)	54 (27.1)	9 (25.0)	8.52	.014	.16
Severe	8 (7.0)	16 (8.0)	4 (11.1)	0.64	.73	.04
Sexual coercion						
Minor	9 (7.8)	29 (14.6)	5 (13.9)	3.17	.21	.10
Severe	7 (6.1)	14 (7)	3 (8.3)	0.24	.88	.03
Total	122	280	57			

LP = Low Psychopathology; MP = Medium Psychopathology; M/HP = High Psychopathology

% = Percentage within profile

**p* < .008 (Bonferroni adjusted)

Table 7

Frequency of minor and severe acts perpetrated by the three profiles against other people

	LP (N=115) N (%)	MP (N=199) N (%)	M/HP (N=36) N (%)	χ^2	<i>p</i>	<i>phi</i>
Psychological aggression						
Minor	83 (72.2)	166 (83.4)	30 (83.3)	6.02	.05	.13
Severe	13 (11.3)	24 (12.1)	8 (22.2)	3.18	.20	.10
Physical assault						
Minor	20 (17.4)	43 (21.6)	12 (33.3)	4.15	.13	.11
Severe	10 (8.7)	24 (12.1)	6 (16.7)	1.90	.38	.07
Sexual coercion						
Minor	9 (7.8)	13 (6.5)	2 (5.5)	0.09	.74	.01
Severe	11 (9.6)	17 (8.5)	3 (8.3)	0.11	.95	.02
Total	146	287	61			

LP = Low Psychopathology; MP = Medium Psychopathology; M/HP = High Psychopathology

% = Percentage within profile

**p* < .008 (Bonferroni adjusted)

Discussion

This study aimed to develop a typology of female perpetrated intimate partner violence (IPV) using variables that proxy the psychopathology dimension of Holtzworth-Munroe and Stuart's (1994) typology: antisocial and borderline personality traits, depression, anger and substance use. Latent Profile analysis found that these variables discriminated between individuals in this university sample well. Four distinct profiles were identified and labelled according to the relative severity of their psychopathology, three of which were deemed reliable enough for inclusion in further analysis (Low (LP), Moderate (MP), Moderate-High Psychopathology (M/HP)). Chi square analyses found some support for increases in aggression with increasing levels of psychopathology across the profiles. A detailed summary of the findings is presented below, followed by an interpretation of these results and how they fit with the wider IPV literature. Finally, implications for future research and practice are discussed.

Summary of findings

Step 1: Generating a typology using variables of psychopathology

115 people (32.7%) formed the LP group, which was similar to Holtzworth-Munroe and Stuart's (1994) Family Only (FO) group in terms of their low scores on all of the measured psychopathology variables. This group scored significantly lower than the MP and M/HP groups on antisocial and borderline personality traits, anger and substance use, and significantly lower than the non-violent control group on antisocial traits. The LP group differed from the FO type in that they scored 'low' on anger, as opposed to the 'moderate' score that Holtzworth-Munroe and Stuart (1994) proposed would be evident for this group.

The anger score was lower for the LP group than the Non-violent Control (NVC) group, although this difference was not significant.

The MP profile classified 199 (56.5%) women in this sample and was the largest group. This group was most similar to Holtzworth-Munroe and Stuart's (1994) Generally Violent Antisocial (GVA) group as they were characterised by their high score on the antisocial personality traits measure in comparison to moderate scores on most other measures. They scored significantly higher than the LP group on antisocial personality traits, yet similar to the M/HP group. They scored moderately on anger, borderline personality traits, and substance use. The MP group therefore differs to Holtzworth-Munroe and Stuart's (1994) GVA type as they did not attain the highest score on substance use, scoring in a similar range to the M/HP group. However, they did score significantly higher than both the LP and Non-Violent Control (NVC) groups on this variable.

The M/HP group classified 36 individuals (10.2%) who exhibited the most psychopathology, scoring higher on borderline and antisocial personality traits, anger, depression, and substance use than the other groups. The M/HP group scored significantly higher than the NVC group and LP groups for all variables, except depression. Furthermore, the M/HP group scored significantly higher than the MP group on borderline personality traits, depression, and substance use. This group is most like the Dysphoric Borderline (DB) group hypothesised by Holtzworth-Munroe and Stuart (1994), which was predicted to have the highest levels of psychopathology in their typology.

There were only two individuals in the HP group (0.6%), which made their inclusion in any kind of analysis impractical and any formal comparison meaningless. This group was therefore excluded from all analyses.

Step 2: Differences between groups on types of aggressive behaviour***Within the relationship***

Bivariate analysis highlighted group differences in the use of severe psychological aggression, with results showing that the M/HP group used severe psychological aggression significantly more frequently than the LP group. Trends for minor physical violence were also found with frequency of use increasing with increases in levels of psychopathology, however this did not reach statistical significance because of the stringent alpha values adopted to correct for the possibility of Type one error. Whilst these results demonstrate that severe psychological aggression is significantly and positively associated with psychopathology, other patterns of violence described in Holtzworth-Munroe and Stuart's (1994) typology were not found in this sample.

A closer look at the raw data shows the LP group reported the lowest frequency of minor and severe acts of psychological aggression, physical assault and sexual coercion against their partner. The difference in the number of acts of severe psychological aggression directed toward their partners was significantly less than the M/HP group. Again, this is consistent with the FO group in the Holtzworth-Munroe and Stuart (1994) typology, in which the FO group was hypothesised to perpetrate the least amount of violence.

There were no significant differences in the frequency of any minor and severe acts of psychological aggression, physical assault or sexual coercion, between the MP and the M/HP groups, or the MP and LP groups. In fact, the MP group perpetrated similar levels of aggression to the M/HP group. This is consistent with Holtzworth-Munroe and Stuart's (1994) typology, which proposed comparable levels of violence between the GVA and DB groups.

Outside of the relationship

No significant differences in the use of any type of aggression outside of the relationship were found between the profiles. Indeed, levels of sexual coercion were similar between all groups. This finding is not consistent with Holtzworth-Munroe and Stuart's (1994) typology which predicted this to be highest in the GVA group.

Interpretation of results

In sum, the final classification can be loosely interpreted as proxy measures of the Holtzworth-Munroe and Stuart (1994) typology, with the LP group characterised by an absence of psychopathology, the MP group characterised by high scores on antisocial personality traits and moderate levels of other psychopathology, and the M/HP group characterised by the highest scores on borderline traits and all other measured variables. However, with the exception of antisocial personality, all variables increased in their frequency across the groups (low – high). This increase in psychopathology coincided with the amount of severe psychological aggression used and a trend for the amount of minor physical aggression used. However, this relationship did not hold true for violence outside of the relationship. Therefore, whilst there are arguably some consistencies between the current sample's classification and the Holtzworth-Munroe and Stuart (1994) typology, a more accurate characterisation of the current sample's IPV may simply be that as levels of psychopathology increase (low – high) in dating samples of university women, so too does the potential for use of some forms of partner aggression.

Understanding the differences found between studies

The results of this study showed less differentiation between antisocial and borderline traits than Holtzworth-Munroe and Stuart (1994). Both of the variables characterised the MHP and MP groups to a certain extent. This finding is however in keeping with other previous research. Although the co-occurrence of borderline and antisocial personality traits in the M/HP group is not something that Holtzworth-Munroe and Stuart (1994) predict, research has shown considerable overlap in the traits of these Cluster B personality disorders (Lowenstein, Purvis, & Rose, 2016; Verona & Vitale, 2006). Personality disorder traits failed to distinguish between the GVA and DB groups in a study testing Holtzworth-Munroe and Stuart's (1994) typology in a community sample (Waltz et al., 2000). Waltz et al. (2000) found both the GVA and DB groups had elevated levels of antisocial and borderline traits that were not significantly different from one another. This finding is similar to that of Tweed and Dutton (1998), Hamberger et al. (1996), and Delsol, Margolin and John (2003), who also struggled to make distinctions between DB and GVA groups (Babcock et al., 2003). Indeed, the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) states that individuals often meet the criteria for more than one Cluster B personality disorder, leading to the suggestion that Antisocial Personality Disorder (APD) and Borderline Personality Disorder (BPD) are differential expressions of the same construct, that of psychopathy (Paris, 1997; Sprague et al., 2012).

Psychopathy is a personality disorder often conceptualised as having two dimensions: primary and secondary (Lynam & Derefinko, 2006). Primary psychopathy, sometimes referred to as Factor 1, is characterised by interpersonal-affective traits, such as a lack of empathy, dishonesty, and the callous exploitation of others. Secondary psychopathy, or Factor 2, is characterised by impulsive-antisocial traits, including impulsivity, disinhibition, and antisocial behaviour, and aggression (Lynam & Derefinko, 2006; Sprague et al., 2012).

Sprague et al. (2012) investigated the relationship between psychopathy and BPD in an undergraduate sample of males and females in the United States. As the authors expected, Factor 2 was independently related to BPD in both males and females. However, contrary to expectation, they found that Factor 1 was also related to BPD, but only in the presence of Factor 2 traits, and only in females, leaving them to conclude that “BPD is a female-specific manifestation of psychopathy” (p.135). Thus, secondary psychopathy may explain the apparent overlap between antisocial and borderline traits, both in this sample, and in previous studies investigating the association between personality disorders and IPV (Holtzworth-Munroe & Meehan, 2002; Magdol et al., 1997; Varley Thornton, Graham-Kevan, & Archer, 2010), and may be a more useful measure to include in research that investigates female perpetration.

The results of this study also showed that, unlike Holtzworth-Munroe and Stuart’s (1994) predictions and tests (Holtzworth-Munroe et al., 2000), high levels of psychopathology were not associated with the increasing severity of aggression. At a simple level, one rationale for the differences in findings is that the current typology is derived from a non-clinical sample of dating, university women and that some differences between this cohort and the samples of violent men used in typology research should be expected. Previous research has demonstrated student samples report lower rates of offending than non-student samples (Thornton et al., 2016). Thus, the low base rates of severe physical violence found in this student samples will make it more difficult to identify classifications that can predict the use of severe physical violence.

One other explanation for the increases in high levels of psychopathology not being associated with increasing severe physical aggression may be that men experience externalising symptomology, such as substance abuse, aggression and antisocial behaviour (Paris, Chenard-Poirier, & Biskin, 2013), more frequently women. Research shows that

women tend to internalise psychopathology, resulting in anxiety and mood disorders, such as depression (Verona & Vitale, 2006) more frequently than men. Therefore, while the same underlying psychopathology may be present in men and women, sex differences may account for differential expression (Verona & Vitale, 2006).

This sex difference is thought to occur as a result of socialisation (Verona & Vitale, 2006). The developmental literature shows similar prevalence rates and severity of behavioural problems in boys and girls, until the age of five years. From this age, girls display a decrease in behavioural problems, while boys either show no change, or an increase in behaviours, such as over-activity, aggression, and defiance (Keenan, Shaw, & Eisenberg, 1997). The aforementioned behavioural problems are inconsistent with accepted stereotypes of female behaviour (Keenan et al., 1997). Thus, socialisation and gender expectations may encourage internalising behaviour, and therefore differential expression of psychopathology (Verona & Vitale, 2006). Furthermore, girls are encouraged to learn, and use alternatives to overt aggression (Côté, 2007) and therefore we would expect to see greater use of indirect aggression by women than by men (Verona & Vitale, 2006). The form that aggression takes is thought to relate to social roles prescribed by gender (Gorman-Smith, 2003), and indirect aggression is considered to be “an alternative manifestation of antisocial traits” for women (Verona & Vitale, 2006, p. 425). Therefore, sex differences in the expression of psychopathology may account for the lack of differences in severe physical aggression between the identified groups.

Finally, contrary to Holtzworth-Munroe and Stuart’s (1994) typology, depression did not differentiate between the groups, with the LP, MP, M/HP and NVC groups all scoring very similarly to one another on the measure of depression. Previous studies testing the Holtzworth-Munroe and Stuart (1994) typology have found significant differences in group’s depression scores (Monson & Langhinrichsen-Rohling, 2002; Waltz et al., 2000). However,

females have higher rates of depression than males (Altemus, Sarvaiya, & Epperson, 2014) and as the majority of the participants in this sample were first year students it is possible that these two combined factors resulted in high scores for all participants regardless of other psychopathology. The stress experienced in adapting to university life has been shown to be a significant predictor of depressive symptomology in college freshmen (Dyson & Renk, 2006). Furthermore, the depression scores in this sample could also have been affected by the time of year at which data was collected. The questionnaire was administered in late September/ early October, which are the weeks leading up to exams and the end of the academic year in New Zealand. Thus, upcoming exams may have contributed to depression scores by increasing anxiety, which has a well-documented association with depression (Andrews & Wilding, 2004).

Understanding the similarities found between studies

Although differences are apparent between this study and the Holtzworth-Munroe and Stuart (1994) typology, the similarities that have also been demonstrated between adult males and the current sample of young dating women are very interesting. With the exception of depression, the psychopathology variables derived from the research with adult males discriminated well between the groups in this study. This provides further evidence of similarities in the aetiological risk of male and female perpetrators, suggesting that similar theoretical explanations for male and female IPV may be applicable. This is contrary to the Gendered account of IPV, which states that females use aggression primarily in the context of self-defence (Hamel, 2009). This research supports the utility of a multifactorial model, such as Dutton's Nested ecological model (Dutton, 1995) that allows the inclusion of different aetiological risk factors to explain both male and female perpetrated partner violence.

The utility of such gender inclusive frameworks in explaining partner violence allow for those factors that have been identified as risks for both men and women, such as substance use and anger, to be used as treatment targets to reduce IPV for men and women. The practice of employing risk factors as treatment targets is a principle of the risk-need-responsivity (RNR) model, which is currently considered to be the best model for guiding offender assessment and treatment for men and women (Andrews & Bonta, 2010). The needs principle of the model states that treatment programmes should target those empirically established risk factors that correlate most strongly with recidivism, with meta-analytic results demonstrating that those programmes that focus on these needs as primary targets of intervention are more effective in reducing reoffending (Andrews & Bonta, 2010).

The need to research and respond to dating violence: Some implications for practice

Finally, the results from this study add to the burgeoning literature demonstrating evidence of psychological aggression, sexual coercion and physical aggression in student samples (e.g. Graham-Kevan & Archer, 2003; 2005; Reidy et al., 2016; Zweig et al., 2014). Whilst a specific controlling behaviours scale was not used in this study, acts from the CTS2S including “I destroyed something belonging to my partner or threatened to hit my partner” and “I insulted or swore or shouted or yelled at my partner” were measured and were present. These fit in to the domain of controlling behaviours and are similar to items on the Controlling and Abusive Tactics Questionnaire, such as “calls partner names”, “ridicules partner”, (p. 33) and “verbally threatens to hurt partner (Hamel et al., 2015, p. 34)

The results are therefore contrary to Johnson’s theory of IPV, in which he states that physical violence in community samples, and that perpetrated by women, is of a low level, with an absence of control (termed Situational Couple Violence; Johnson, 1995; 2006).

Johnson discusses the Holtzworth-Munroe and Stuart (1994) typology in his 2006 paper, suggesting that their typology is supportive of his theory in that DB and GVA types are Intimate Terrorists (perpetrating violence in the context of control) and the FO type are more likely to engage in Situational Couple Violence. Furthermore, Johnson maintains the Intimate Terrorist is almost exclusively male (Johnson, 1999). However, the findings from this study show that profiles fitting the Intimate Terrorist description, with high levels of psychopathology and aggression, including acts of control and severe acts of physical aggression, are found in a non-clinical female sample. The present study therefore suggests this theory is overly simplistic. Johnson (2006) suggests that effective intervention and policy needs to be guided by the distinction between Situational Couple Violence and Intimate Terrorism (Johnson, 2006). However, such interventions and policies will be counter-intuitive if they do not accurately reflect the nature of partner violence being used by men and women. They will serve to marginalise male victims of female partner violence whose experiences will not be accounted for.

Indeed, Dixon and Graham-Kevan (2011) stress the importance of using primary prevention campaigns to target IPV, and to do this effectively the messages that the campaigns use must target the nature of IPV for the majority of people. That is the messages used need to educate the public about the different experiences of IPV that the general population will experience and can identify with. As the results from this study show, females behave aggressively in their relationships, and it therefore vital that primary prevention is gender inclusive in order to adequately address the social problem of IPV which affects individuals irrespective of gender or sexual orientation (Dank, Lachman, Zweig, & Yahner, 2014).

One such gender inclusive intervention has been developed and instituted at Clark University in Boston, USA (Clark University, 2017). The Clark Anti-Violence Education

Program is a series of mandatory educational programmes focussing on dating violence, harassment, consent and sexual assault. The programme has been adopted as part of university policy, and has supporting procedures and resources in place. In addition, Clark University offer student led outreach programmes focussing on healthy relationships, consent and violence prevention (Clark University, 2017). An example of a prevention initiative in New Zealand, the University of Auckland have adopted a family violence policy and guidelines, which outline the support that needs to be available to students and staff who experience family violence (University of Auckland, n.d.). Such prevention methods offer a positive approach to the public health issue.

Methodological considerations

This study found that women in the sample reported perpetrating similar levels of aggression towards partners and other people, which resulted in the variable that measured ‘aggression to others’ not being useful in distinguishing between the groups identified. Although this finding may have been attributable to the explanations offered above, it may equally have been attributable to the wording of the questions on the CTS-O measure. The CTS-O asks respondents whether they had committed a particular act against a family member, acquaintance or stranger. Women will most often aggress against those with whom they have a close relationship, such as intimate partners, children, and family (Archer, 2000; Côté, 2007, Verona & Vitale, 2006), while men are more likely to aggress against strangers (Wilson, 2006). The inclusion of family members in this variable may have resulted in an inflated estimation of aggression towards others. This assumption of measurement invariance and the associated failure to account for the interpersonal context in which women’s violence mostly occurs (Côté, 2007), are arguably limitations of this study. Future research could

address this issue by redefining the questions to ask specifically about aggression directed towards: a) family members and b) acquaintances and strangers.

Of importance, this study took a top-down approach, investigating whether a typology designed for males could be successfully applied to females. While this study has determined the utility of gender inclusive and multifactorial frameworks to understand female perpetration, it also highlights differences between the genders. There is a consistent theme in the practice literature whereby male assessment tools and treatment programmes are applied to women without adaption (Verona & Vitale, 2006). Therefore, while this study shows the importance of a multifactorial approach and learning from the literature with male offenders, it also suggests that future research that takes a bottom-up approach to examine female perpetration within a multifactorial framework would be useful. The findings of which should inform subsequent typology work of this nature. A further limitation is the cross-sectional design of this study, which prevents establishing causation, and the use of a university sample, which is not representative of the female New Zealand population. To overcome these limitations, future research could adopt qualitative and/ or longitudinal designs, and consider testing the typology with both clinical and non-clinical samples.

Finally, this study focussed exclusively on heterosexual relationships. However, due to the prevalence of IPV in LGBTI+ relationships (Dank et al., 2014; Martin-Storey & Fromme, 2016), future research should also investigate how sexual minority status might interact with psychopathology to affect perpetration of IPV.

Conclusions

This study demonstrates that there are women at university, who evidence raised levels of psychopathology and behave violently in their relationships. These women can be meaningfully grouped by their levels of psychopathology using the variables proposed by Holtzworth-Munroe and Stuart (1994) for male offenders. As the level of psychopathology increases so does the amount of severe psychological aggression the women perpetrate toward their intimate partner. Whilst this research highlights similarities in the classification of male and female perpetrators and the aetiological risk factors for the sexes, it also highlights some differences, such as the differential expression of psychopathology. The need to investigate and respond to women's IPV in its own right is therefore proposed. Further in-depth research is required to explore the subtleties associated with women's dating violence to inform the best treatment and practice methods with this group. In addition, the need to develop typologies of female, non-clinical samples of IPV is also necessary in order to gain an understanding of the full spectrum of women's partner aggression. Indeed, typology research shows that the types identified will differ by the nature of the sample tested, with more psychopathology and severe violence identified in convicted samples compared to community samples of offenders (Dixon & Browne, 2003). This level of understanding of female perpetrators is important so that professionals can learn what they can do to support women and provide appropriate resources to address their needs, reduce violence to men and facilitate people to have healthy, violence free relationships.

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