

**Chapter to appear in:**

**S.R. Maxwell & S.L. Blair (eds.), *Contemporary Perspectives in Family Research*. Bingley, U.K: Emerald Publishing.**

A Latent Class Approach to Understanding the Intergenerational Transmission of Violence in

Emerging Adult Relationships

Peter M. Rivera and Frank D. Fincham

The Florida State University

## Abstract

**Purpose:** Research on the intergenerational transmission of violence has been limited by reliance on variable-oriented methodology that does not capture heterogeneity that exists within experiences of violent interpersonal conduct. The current study therefore examines the utility of a person-oriented statistical method in understanding patterns of maltreatment and intimate partner violence. **Approach:** Guided by person-oriented theory, the current study utilizes latent class analysis, a person-oriented method used with cross-sectional data, to examine the heterogeneity within this transmission process in a sample of emerging adults ( $N = 150$ ). This study also examined whether the classes identified differed on reported emotional reactivity and childhood family environment. **Findings:** Three classes emerged from the latent class analysis, labeled *full transmission*, *psychological transmission*, and *no transmission*. Those comprising the *full transmission* subgroup reported the lowest levels of childhood family cohesion, accord, and closeness. The *full transmission* subgroup also reported significantly more emotional reactivity than the *psychological transmission* and *no transmission* subgroups. **Implications:** To understand fully the etiology of intimate partner violence for maltreated offspring, a multidimensional view of violence is needed. The current study represents a step in this direction by demonstrating the utility of a person-oriented approach in understanding the IGT of violence.

*Keywords:* Intergenerational Transmission of Violence, Maltreatment, Intimate Partner Violence, Latent Class Analysis, Person-oriented methods

*Category:* Research paper

A Latent Class Approach to Understanding the Intergenerational Transmission of Violence in  
Emerging Adult Relationships

Maltreated offspring have been shown to be at an increased risk for experiencing violence within their later intimate relationships (e.g., Rivera & Fincham, 2015); the intergenerational transmission (IGT) of violence. Weak-to-moderate support for the IGT of violence hypothesis (Stith et al., 2000) may reflect an overreliance on variable-oriented approaches that do not capture the heterogeneity that exists within experiences of violent interpersonal conduct (Bogat, Levendosky, & Eye, 2005; Herrenkohl & Herrenkohl, 2007; Swartout & Swartout, 2012). The failure to adopt a more multidimensional view has hindered our ability to generalize findings across studies, develop more sophisticated theories, and interrupt the transmission of violence across generations. It is therefore essential in advancing our understanding of the IGT of violence to begin utilizing analytical techniques that account for the heterogeneity that may exist within the transmission process, such as person-oriented methods (von Eye & Bogat, 2006). Researchers have yet to utilize these techniques in the study of the IGT of violence. The current study therefore aims to demonstrate the utility of a person-oriented method (i.e., latent class analysis) in understanding patterns of maltreatment and intimate partner violence, while considering the type and severity of reported maltreatment<sup>1</sup> and intimate partner violence.

### **Intergenerational Transmission of Violence**

Social Learning theory (SLT; Bandura, Ross, & Ross, 1962) is often utilized in explaining the IGT of violence, which postulates that offspring learn that intimate partner violence is acceptable behavior by witnessing parents model such behavior during conflicts

---

<sup>1</sup> We define maltreatment as experiences of neglect, physical, emotional, and/or sexual abuse directed towards an offspring, including exposure to interparental violence.

(Mihalic & Elliott, 1997). Prospective and retrospective data provide support for links between varying forms of maltreatment and varying forms of intimate partner violence. Research on emerging adults using longitudinal designs shows that exposure to interparental violence is related to psychological and physical intimate partner violence perpetration and victimization (Cui, Durtschi, Donnellan, Lorenz, & Conger, 2010; Fergusson, Boden, & Horwood, 2006; Smith, Ireland, Park, & Thornberry, 2011). Further, there is evidence that experiences of physical maltreatment and neglect in childhood are related to reported injuries sustained through intimate partner violence (Ehrensaft et al., 2003). However, it should be noted that most research on the IGT of violence has utilized cross sectional study designs and variable-oriented methods, and has provided inconsistent support for relationships among varying forms of experienced maltreatment and intimate partner violence (e.g., Gover, Kaukinen, & Fox, 2008; Rivera & Fincham, 2015; Simons, Simons, Lei, Hancock, & Fincham, 2012).

### **Gender**

An element that may have contributed to inconsistencies within IGT of violence research is gender. There is evidence that the IGT of violence may function differently for males and females, and is dependent on the gender of the perpetrator and victim of violence. Gender identification models of the IGT of violence have been proposed and empirically supported (e.g., Jankowski, Leitenberg, Henning, & Coffey, 1999), and suggest that the likelihood of violent interpersonal conduct being transmitted across generations is increased when the perpetrator of maltreatment is of the same sex as the offspring. Most recently, Milletich, Kelley, Doane, and Pearson's (2010) study of 703 emerging adults supported a gender identification model of the IGT of violence. Their findings indicated that the likelihood for perpetrating physical intimate partner violence was strongest when male and female emerging adults reported a history of

exposure to interparental violence perpetrated by the same sex parent. Despite these findings and previous evidence supporting a gender identification model of the IGT of violence, this model has not been consistently supported (e.g., Gover et al., 2008). As such, these findings are far from conclusive and further research on the IGT of violence that considers the role of gender is needed to better understand its impact on the transmission process.

### **Approaches to Studying the Intergenerational Transmission of Violence**

#### **Focusing on One Form of Violence**

Despite evidence indicating that maltreatment and intimate partner violence are multidimensional constructs (Bogat, Levendosky, & Eye, 2005; Herrenkohl & Herrenkohl, 2009; Swartout & Swartout, 2012), research on the IGT of violence has overwhelmingly adopted variable-oriented methods and has approached violent interpersonal conduct as a unidimensional phenomenon (e.g., Black, Sussman, & Unger, 2010; Cui et al., 2010; Karakurt, Keiley, & Posada, 2013; Simons et al., 2012). One such approach involves focusing on a particular type of maltreatment and/or intimate partner violence in isolation (e.g., Gay, Harding, Jackson, Burns, & Baker, 2013; Lee, Reese-Weber, & Kahn, 2014; Rosen et al., 2001). Even though these efforts have contributed to our understanding of the IGT of violence, by focusing on one type of violence without controlling for others extant research fails to deal with the problem of comorbidity or co-occurring experiences of violence. Offspring who experience maltreatment often experience more than one type (Arata, Langhinrichsen-Rohling, Bowers, & Farrill-Swails, 2005; Berzens et al., 2011; Teicher, Samson, Polcari, & McGreenery, 2006), and individuals who report experiencing intimate partner violence also rarely experience one form alone (Sullivan, McPartland, Armeli, Jaquier Erard, & Tennen, 2012). It is probable that confounding

single and co-occurring maltreatment experiences have contributed to current inconsistencies within IGT of violence research.

### **Focusing on the Presence of Violence**

In addition to focusing on a single type of maltreatment, IGT of violence research has relied on classifying the presence of maltreatment (e.g., Gover et al., 2008; Millett, Kohl, Jonson-Reid, Drake, & Petra, 2013) or intimate partner violence (e.g., Gover et al., 2008; Millett et al., 2013; Whiting, Simmons, Havens, Smith, & Oka, 2009) when testing the IGT of violence hypothesis. Classifying the presence of violent interpersonal conduct overlooks evidence indicating that different types of maltreatment produce different effects on psychosocial health (Hahm, Lee, Ozonoff, & Wert, 2010; Teicher et al., 2006) and that co-occurring maltreatment types effects the well-being of children and adolescents differently (Hazen, Connelly, Roesch, Hough, & Landsverk, 2009; Villodas et al., 2012). For example, Berzenski and Yates (2001) identified subgroups of emerging adults based on multiple indicators of maltreatment, and found significant subgroup differences across a number of psychosocial outcomes.

This approach of simply focusing on the presence of violence also neglects evidence suggesting that the likelihood of violent conduct being transmitted across generations will depend on the severity of violence experienced (Berzenski, Yates, & Egeland, 2014; Litrownik et al., 2005; Straus & Michel-Smith, 2014). In a study examining the effects of different dimensions of maltreatment (i.e., type, severity, chronicity, and age at first report) on child functioning, English et al. (2005) concluded that the type of maltreatment (indicated by the maximum severity rating for each type) was the most consistent predictor of child outcomes. These findings suggest that particular subgroups of maltreated offspring may be more vulnerable to the IGT of violence, and by considering and assessing all maltreatment types and severity

concurrently, IGT of violence researchers may begin to identify shared and distinctive contributions of maltreatment types and severity to the risk of experiencing intimate partner violence.

### **Person-Oriented Approach to Studying the Intergenerational Transmission of Violence**

Variable-centered approaches (e.g., multiple regression) assume that populations are homogenous and that variables operate the same way across populations. Conversely, person-oriented approaches assume that significant heterogeneity exists within populations and that shared patterns exist within subgroups of populations (Bergman & Magnusson, 1997; von Eye & Bogat, 2006). These assumptions have direct implications for how violent interpersonal conduct is operationalized within IGT of violence research. A person-oriented approach can be segmented into two parts, theory and methods (Bergman & Wangby, 2014).

### **Person-Oriented Theory**

A holistic-interactionistic view (Bergman & Magnusson, 1997) considers an individual to be “an organized whole with elements operating together to achieve a functioning system in a dynamic process with interactions between components” (Bergman & Wangby, 2014, p. 31). This view leads researchers to consider the many possible constellations of maltreatment and intimate partner violence types that one may have experienced when examining the IGT of violence. The principles of a person-oriented approach were developed upon this holistic-interactionistic perspective (Bergman, 2001; Sterba & Bauer, 2010; von Eye & Bergman, 2003). This perspective includes the view that patterns across variables offer insight into the development of behavior and that a finite number of patterns exist across individuals and populations, some with greater or lesser frequency. For a more detailed overview of the holistic-interactionistic perspective the reader is referred to Bergman and Magnusson (1997).

### **Person-oriented Methods**

Three assumptions guide methodology within the person-oriented approach (von Eye & Bogat, 2006). The first presumes that samples derive from populations made-up of many subgroups, which can be specified or identified. This can be achieved a number of ways, such as through the use of a person-oriented method (e.g., latent class analysis) that decomposes a sample into homogenous subgroups based on observed variables. The second assumption pertains to external validity, and assumes that subgroups will significantly vary on at least one variable not used to specify the subgroups. Finally, the third assumption suggests that subgroups must have substantive interpretation and theoretical meaningfulness (von Eye & Bogat, 2006).

Latent class analysis is a person-oriented method that may be particularly promising for IGT of violence research that relies on cross-sectional study designs. This analytical method uses finite mixture modeling to empirically identify patterns across individuals based on observed variables that explain the unobserved heterogeneity within the phenomenon under investigation. In other words, latent class analysis uses response patterns of observed variables (e.g., maltreatment types) to assign individuals from a heterogeneous sample to homogenous subgroups (Roesch, Villodas, & Villodas, 2010; von Eye & Bogat, 2006); maximizing the homogeneity within group and heterogeneity between groups (for review see Roesch et al., 2010). Latent class analysis could offer insight into the IGT of violence by uncovering meaningful heterogeneity with the transmission process by not only modeling the heterogeneity that exists within experiences of maltreatment but also experiences of intimate partner violence. However, research has yet to extend latent class analysis to the IGT of violence.

### **The Current Study**

The current study extends research employing person-oriented methods to violent interpersonal conduct by applying a person-oriented method to the IGT of violence. Through the use of latent class analysis, the current study aims to identify meaningful subgroups of emerging adults based on histories of maltreatment and intimate partner violence, while considering the type and severity of violence reported. To establish the external validity of subgroups identified in the current study, mean differences in emotional reactivity and childhood family environment are examined. Emotional reactivity seems to be especially salient in understanding conflict within emerging adults' intimate relationships (Wei, Vogel, Ku, & Zakalik, 2005), and has been demonstrated to be associated with one's family environment (Gardner, Busby, & Brimhall, 2007) and childhood exposure to interparental violence (McKee & Payne, 2014). As such, emotional reactivity may be especially relevant to understanding increased risk for experiencing intimate partner violence among individuals with maltreatment histories. The following hypotheses were tested:

**H1:** Latent class analysis will identify at least one distinct subgroup characterized by histories of co-occurring maltreatment types.

**H2:** The class characterized with the highest likelihood of reporting exposure to interparental violence, maltreatment perpetrated by either parent, and intimate partner violence will report the lowest levels of childhood family cohesion, accord, and closeness.

**H3:** The class characterized with the highest likelihood of reporting exposure to interparental violence and maltreatment perpetrated by either parent, and intimate partner violence will report the highest level of emotional reactivity

## Methods

### Participants

Participants were 150 emerging adults from a university in the southeastern United States. Participants were predominately female (94%), between the ages of 18 and 28 ( $M = 20.20$ ,  $SD = 1.47$ ), with 73.3% identifying as White, 15.3% African American, 5.3% biracial, 3.4% did not report, 2% Asian, and .7% American Indian or Alaska Native. The majority of participants reported being in their third or fourth year of their respective programs; 3 were in their first year, 50 sophomore year, 69 junior year, and 27 reported being in their senior year. Participant's also reported on their current GPA, which ranged from 2.00 to 4.00 ( $M = 3.22$ ,  $SD = .42$ ). Regarding their families, the majority of participants' families were currently intact (64%), followed by separated/divorced (18%), stepfamily (10%), other (4.7%), and never married (3.3%). Participants were asked to estimate their family's annual income; 34.7% reported between 50K and 100K, 31.3% reported above 100K, 19.3% between 30K and 50K, 8% below 30K, and 6.7% did not know their family annual income.

### Procedures

After approval was obtained from the local Institutional Review Board, students from three undergraduate courses were offered several options to earn extra credit; one option was to complete the instruments used in the current study. The surveys were completed during a lab visit that lasted approximately 1 hour. All participants read a consent form prior to their lab visit explaining the voluntary nature of their participation.

### Measures

**Maltreatment and intimate partner violence.** The Revised Conflict Tactics Scales (CTS2; Straus et al., 1996) were used to assess lifetime experiences of maltreatment and most recently experienced intimate partner violence. Items from the parent-parent, parent-child, and

partner-partner versions of the CTS2 were used. Responses were given on a 1 (“this has never happened”) to 7 (“more than 20 times”) scale. For the parent-parent and partner-partner versions of the CTS2, items from the severity subscales of the physical assault and psychological aggression scales were used yielding 8 indicators each for interparental and intimate partner violence, respectively ( 2 [severity: severe vs. minor] x 2 [type: physical vs psychological], and 2 [target]). For the parent-child version of the CTS2 items from the physical assault and psychological aggression scales were used yielding 4 indicators (2 [parent: mother vs. father] x 2 [type; physical vs. psychological]). Final subscale scores were recoded to “1” if one or more of a subscale’s acts occurred previously and “0” if none of the items had occurred. Table 1 presents a detailed list of the categorical indicators used in the following analyses.

**Childhood family environment.** The Childhood Family Environment Scale was used to assess reports of interpersonal relationships in the family during childhood (i.e., cohesion, accord, and closeness; King et al., 2003). Responses to the 15-items were recorded on a 1 (“almost none of the time”) to 5 (“almost all of the time”) scale, and summed to create a final score. Example items include “People in my family did things together” and “Family members avoided each other”. Higher scores reflected childhood family environment characterized by higher cohesion, accord, and closeness. The alpha coefficient for the current sample was .92.

**Emotional reactivity.** The Emotion Reactivity Scale (Nock, Wedig, Holmberg, & Hooley, 2008) was used to assess participants’ emotional reactivity. Participants responded to 21-items on a 1 (“not at all like me”) to 4 (“completely like me”) scale. Example items include “I experience emotions very strongly” and “I get angry at people very easily”. Items were averaged to create final scores ( $\alpha = .96$  in the current sample), which ranged from 1 to 4 with higher scores reflecting higher levels of emotional reactivity.

### **Analytical Approach**

Latent class analysis was conducted with Mplus (Muthén & Muthén, 1998-2012) to examine the structure underlying the set of 12-maltreatment (4 parent-child; 8 interparental) and 8-intimate partner violence constructs. This approach is particularly useful for the current study design because it models the heterogeneity that exists within response patterns to maltreatment and intimate partner violence experiences based on type and severity. In conducting latent class analysis, the current study used the Pseudo-class (PC) approach (Asparouhouv & Muthen, 2013).

First, latent class analysis was conducted testing  $k$ -classes against  $k - 1$  classes, until the appropriate number of classes to characterize the data emerged. The following fit indices and inferential tests guided this process: Akaike information criterion (AIC), Bayesian information Criterion (BIC), sample size adjusted BIC (A-BIC), Entropy, and the Lo-Mendell-Rubin Adjusted LRT (LMRT). Lower AIC, BIC, and A-BIC indicate better model data fit. Entropy ranges from 0 to 1, where closer to 1 indicates how well classes have been distinguished. Further, Bootstrapped likelihood ratio test (BLRT) provides a  $p$ -value that when significant indicates that a model with  $k$  classes significantly fits the data better than the model with  $k - 1$  classes (Roesch et al., 2010). Probabilities of class membership assignment and the substantive interpretation and theoretical meaningfulness of each model also informed this process. Subsequent to identifying the appropriate number of classes that fit the data best, we examined the associations among class membership, childhood family environment, and emotional reactivity. The PC method uses posterior probability-based multiple imputation and pseudo-class Wald chi-square significance tests to determine differences in means, and has been demonstrated to be most effective when entropy (i.e., class separation) is greater than .60 (Asparouhouv & Muthén, 2013).

## Results

### Prevalence of Intimate Partner Violence

In the current study, over half of participants reported experiencing at least one form of intimate partner violence ( $n = 119$ ). Moreover, approximately 76% of participants reported perpetration ( $n = 114$ ) and 70% ( $n = 105$ ) victimization of intimate partner violence. Our estimates align with past estimates of emerging adults who have experienced intimate partner violence in the United States, which have ranged from 25% to 75% (Halpern-Meekn, Manning, Giordano, & Longmore, 2013; Renner & Whitney, 2012; Rennison & Welchans, 2000; Whitaker, Haileyesus, Swahn, & Saltzman, 2007).

### Model Selection

Table 2 presents the fit indices and inferential test statistics for one-, two-, three-, four-, and five-class solutions. Entropy was particularly high for each model, suggesting that these models discriminated the classes well. AIC and A-BIC decreased for every solution over one-class, suggesting a five-class solution to be the best fit for the data. However, BIC increased when going from a three- to four-class solution and the LMRT test was not significant when comparing a three- to four-class solution, indicating a three-class solution as the best fitting and most parsimonious model. As such, a three-class solution was selected.

### Description of three-class Solution

Each of the three subgroups corresponds to an underlying segment of emerging adults in our sample characterized by specific patterns of maltreatment and intimate partner violence. The conditional response probabilities depicted in figure 1 provides information for interpreting and labeling each class.

Individuals in the first latent class labeled *full transmission* are characterized by high probabilities of exposure to minor physical and psychological, and severe psychological interparental violence perpetrated by either parent. In addition, this subgroup had high probabilities of reporting psychological maltreatment perpetrated by either parent, and physical maltreatment perpetrated by mothers. Regarding intimate partner violence, class-one had high probabilities of reporting perpetration of minor physical, psychological, and severe psychological violence; in addition to reporting minor physical and psychological victimization. Individuals in the second class are characterized by high probabilities of reporting exposure to minor psychological interparental violence and psychological maltreatment perpetrated by either parent. This class also had high probabilities of reporting perpetration and victimization of minor psychological aggression; thus, this class was labeled *psychological transmission*. The third latent class comprised individuals who are likely to report mother perpetrated psychological maltreatment, and perpetration and victimization of minor psychological aggression; as such, this group was called *no transmission*.

### **Differences in Childhood Family Environment as a Function of Class Membership**

To validate the differences between subgroups, mean scores for family environment during childhood were examined. Results from Wald chi-square significance tests indicated that childhood family environment varied across the three classes (see Table 3). Individuals comprising the *full transmission* subgroup reported the lowest levels of childhood family cohesion, accord, and closeness ( $M = 51.52$ ), followed by individuals in the *psychological transmission* subgroup ( $M = 56.99$ ), with individuals in the *no transmission* subgroup reporting the highest levels of childhood family cohesion, accord, and closeness ( $M = 64.08$ ).

### **Differences in Emotional Reactivity as a Function of Class Membership**

Results associated with Wald chi-square significance tests that determined whether subgroup differences on emotional reactivity were statistically significant are presented in Table 3. Individuals comprising the *full transmission* subgroup reported significantly more emotional reactivity ( $M = 2.48$ ) than those in the *psychological transmission* ( $M = 1.97$ ) and *no transmission* ( $M = 2.01$ ) subgroups. However, there were no significant differences in emotional reactivity between the individuals in the *psychological transmission* and *no transmission* subgroups.

### **Discussion**

The purpose of this study was to demonstrate the utility of a person-oriented approach to understanding the IGT of violence. This was achieved through latent class analysis using multiple indicators of maltreatment and intimate partner violence that accounted for the multiple types and severity of violent conduct. A three-class solution emerged as most parsimonious, and the classes were labeled *full transmission*, *psychological transmission*, and *no transmission*, reflecting the IGT of violence that most accurately characterized each subgroup. Thus, subgroups of emerging adults were identified across multiple indicators of maltreatment and intimate partner violence. These subgroups were validated by examining reports of emotional reactivity and childhood family environment. Consistent with our second and third hypotheses, the *full transmission* subgroup was characterized by the lowest reported levels of childhood family cohesion, accord, and closeness. The *full transmission* subgroup also reported significantly more emotional reactivity than the *psychological transmission* and *no transmission* subgroups.

In line with our first hypothesis, distinct subgroups of emerging adults were found based on multiple indicators of maltreatment and intimate partner violence. Notably, the *full transmission* subgroup was characterized by multiple forms of maltreatment and intimate partner violence that varied in severity. The *psychological transmission* subgroup was characterized by minor psychological maltreatment and intimate partner violence. Lastly, the *no transmission* subgroup did not report any forms of maltreatment, yet did have a likelihood of reporting minor psychological aggression within their intimate relationships. This finding is consistent with past research indicating psychological aggression to be a common characteristic within emerging adult intimate relationships (Black, et al., 2010). This finding also offer support for a SLT explanation of the IGT of violence, and aligns with person-oriented principles by illustrating several possible constellations of maltreatment and intimate partner violence types within the IGT of violence.

Validation of the identified subgroups indicated that each subgroup significantly varied from the others on self-reported childhood family environment. In line with our second hypothesis, the *full transmission* subgroup's reported the lowest levels of childhood family cohesion, accord, and closeness, followed by the *psychological transmission* and *no transmission* subgroups. These findings suggest that a multidimensional view of the IGT of violence should consider family environment processes beyond conflict when examining the IGT of violence hypothesis. Research will be needed that takes a more comprehensive multidimensional view of maltreated offspring's family-of-origin experiences, which may be achieved by considering family social and environmental characteristics and child maltreatment experiences concurrently; such efforts may uncover overlooked subgroups of maltreated offspring who are vulnerable to the IGT of violence.

Consistent with our third hypothesis, the *full transmission* group reported significantly more emotional reactivity than the *psychological transmission* and *no transmission* subgroups. This finding is consistent with the role accorded emotion regulation or self-control in the genesis of violent conduct. Even though the *psychological transmission* subgroup reported more emotional reactivity than the *no transmission* subgroup, this difference was not significant. These findings align with past research indicating that patterns of co-occurring maltreatment may have an accumulative effect leading to maladjustment (Arata et al., 2005; Berzenski & Yates, 2011) and underscores the need for IGT of violence research to consider the presence of multiple forms of maltreatment when testing the IGT of violence hypothesis. This can be achieved through adopting a person-oriented approach. These findings also align with existing research by suggesting that emotional reactivity is especially salient in understanding conflict within emerging adults' intimate relationships when a history of maltreatment is present (Rivera & Fincham, 2015; Rosen et al., 2001).

### **Limitations and Future Directions**

The current study demonstrates the utility of a person-oriented approach in examining the IGT of violence; however, due to the nature of the data several limitations should be considered when interpreting our findings. Due to the cross-sectional nature of this study, longitudinal research employing person-oriented methods to the IGT of violence is still needed. Another limitation was the sample used in the current study, which is restricted by the disproportionate number of female participants; it will be necessary for research to replicate the current findings with samples more representative of the emerging adult population. Lastly, the sample size in the current study limited our ability to consider all the dimensions of violence in our analyses. There is a need for person-oriented research testing the IGT of violence hypothesis

that accounts for the type, severity, chronicity, duration, and frequency of maltreatment perpetrated and later intimate partner violence.

### **Implications**

To better address violence transmitted across generations, researchers should consider using person-oriented methods to account for and examine the heterogeneity that exists within the experiences of maltreatment and intimate partner violence. There is a growing consensus that research involving maltreatment or intimate partner violence must move away from examining isolated effects of violence and begin to approach maltreatment and intimate partner violence as multidimensional constructs (Bogat, Levendosky, & Eye, 2005; Herrenkohl & Herrenkohl, 2009; Swartout & Swartout, 2012). Person-oriented approaches offer a range of analytical techniques that will allow IGT of violence researchers to achieve this, and ultimately will assist in developing a better understanding of this phenomenon.

### **Conclusion**

To understand fully the etiology of intimate partner violence for maltreated offspring, a multidimensional view of violence is needed. The current study represents a step in this direction by demonstrating the utility of a person-oriented approach in understanding the IGT of violence. Our results indicated that heterogeneity within reports of maltreatment and intimate partner violence can be modeled through a person-oriented approach by considering the type and severity of violence perpetrated. The current findings also support family-of-origin processes and offspring emotional reactivity as possible factors that may assist in explaining the IGT of violence.

## References

- Arata, C. M., Langhinrichsen-Rohling, J., Bowers, D., & O'Farrill-Swails, L. (2005). Single versus multi-type maltreatment: An examination of the long-term effects of child abuse. *Journal of Aggression, Maltreatment & Trauma, 11*, 29-52. doi:10.1300/j146v11n04\_02
- Asparouhouv, T., & Muthen, B. (2013). Auxiliary variables in mixture modeling: A 3-step approach using Mplus. *Mplus web notes: No. 15*. Retrieved from <http://www.statmodel.com/examples/webnotes/webnote15.pdf>
- Bandura, A. J., Ross, R., & Ross, S. (1962). Transmission of aggression through imitation of aggressive models. *Journal of Abnormal and Social Psychology, 63*, 575-582. doi:10.1037/h0045925
- Bartle, S. E., & Rosen, K. (1994). Individuation and relationship violence. *The American Journal of Family Therapy, 22*, 222-236. doi:10.1080/01926189408251316
- Bergman, L. R. (2001). A person approach in research on adolescence: Some methodological challenges. *Journal of Adolescent Research, 16*, 28-53. doi:10.1177/0743558401161004
- Bergman, L. R., & Magnusson, D. (1997). A person-oriented approach in research on developmental psychopathology. *Development and psychopathology, 9*, 291-319. doi:10.1017/S095457949700206X
- Bergman, L. R., & Wångby, M. (2014). The person-oriented approach: A short theoretical and practical guide. *Estonian Journal of Education, 2*, 29-49. doi:10.12697/eha.2014.2.1.02b
- Berzenski, S. R., & Yates, T. M. (2011). Classes and consequences of multiple maltreatment a person-oriented analysis. *Child maltreatment, 16*, 250-261. doi:10.1177/1077559511428353

- Berzenski, S. R., Yates, T. M., & Egeland, B. (2014). A multidimensional view of continuity in intergenerational transmission of child maltreatment. In *Handbook of Child Maltreatment* (pp. 115-129). Springer Netherlands. doi:10.1007/978-94-007-7208-3\_6
- Black, D. S., Sussman, S., & Unger, J. B. (2010). A further look at the intergenerational transmission of violence: Witnessing interparental violence in emerging adulthood. *Journal of Interpersonal Violence, 25*, 1022-1042. doi:10.1177/0886260509340539
- Bogat, G. A., Levendosky, A. A., & Von Eye, A. (2005). The future of research on intimate partner violence: Person-oriented and variable-oriented perspectives. *American Journal of Community Psychology, 36*, 49-70. doi:10.1007/s10464-005-6232-7
- Cui, M., Durtschi, J. A., Donnellan, M. B., Lorenz, F. O., & Conger, R. D. (2010). Intergenerational transmission of relationship aggression: A prospective longitudinal study. *Journal of Family Psychology, 24*, 688-687. doi:10.1037/a0021675
- English, D. J., Upadhyaya, M. P., Litrownik, A. J., Marshall, J. M., Runyan, D. K., Graham, J. C., & Dubowitz, H. (2005). Maltreatment's wake: The relationship of maltreatment dimensions to child outcomes. *Child Abuse & Neglect, 29*, 597-619. doi:10.1016/j.chiabu.2004.12.008
- Ehrensaft, M. K., Cohen, P., Brown, J., Smailes, E., Chen, H., & Johnson, J. G. (2003). Intergenerational transmission of partner violence: a 20-year prospective study. *Journal of consulting and clinical psychology, 71*, 741-753.
- Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2006). Examining the intergenerational transmission of violence in a New Zealand birth cohort. *Child abuse & neglect, 30*, 89-108.

- Gardner, B. C., Busby, D. M., & Brimhall, A. S. (2007). Putting emotional reactivity in its place? Exploring family-of-origin influences on emotional reactivity, conflict, and satisfaction in premarital couples. *Contemporary Family Therapy, 29*, 113-127. doi:10.1007/s10591-007-9039-x
- Gay, L. E., Harding, H. G., Jackson, J. L., Burns, E. E., & Baker, B. D. (2013). Attachment style and early maladaptive schemas as mediators of the relationship between childhood emotional abuse and intimate partner violence. *Journal of Aggression, Maltreatment & Trauma, 22*, 408-424. doi:10.1080/10926771.2013.775982
- Gover, A. R., Kaukinen, C., & Fox, K. A. (2008). The relationship between violence in the family of origin and dating violence among college students. *Journal of Interpersonal Violence, 23*, 1667-1693. doi:10.1177/0886260508314330
- Hahm, H. C., Lee, Y., Ozonoff, A., & Van Wert, M. J. (2010). The impact of multiple types of child maltreatment on subsequent risk behaviors among women during the transition from adolescence to young adulthood. *Journal of youth and adolescence, 39*, 528-540. doi:10.1007/s10964-009-9490-0
- Halpern-Meehin, S., Manning, W. D., Giordano, P. C., Longmore, M. A. (2013). Relationship churning, physical violence, and verbal abuse in young adult relationships. *Journal of Marriage and Family, 75*, 2-12. doi:10.1111/j.1741-3737.2012.01029.x.
- Hazen, A. L., Connelly, C. D., Roesch, S. C., Hough, R. L., & Landsverk, J. A. (2009). Child maltreatment profiles and adjustment problems in high-risk adolescents. *Journal of interpersonal violence, 24*, 361-378. doi:10.1177/0886260508316476
- Herrenkohl, T. I., & Herrenkohl, R. C. (2007). Examining the overlap and prediction of multiple forms of child maltreatment, stressors, and socioeconomic status: A longitudinal analysis

of youth outcomes. *Journal of Family Violence*, 22, 553-562. doi:10.1007/s10896-007-9107-x

Jankowski, M. K., Leitenberg, H., Henning, K., & Coffey, P. (1999). Intergenerational transmission of dating aggression as a function of witnessing only same sex parents vs. opposite sex parents vs. both parents as perpetrators of domestic violence. *Journal of Family Violence*, 14, 267-279. doi:10.1023/A:1022814416666

Karakurt, G., Keiley, M., & Posada, G. (2013). Intimate relationship aggression in college couples: Family-of-origin violence, egalitarian attitude, attachment security. *Journal of Family Violence*, 28, 561-575. doi:10.1007/s10896-013-9526-9

Lee, M., Reese-Weber, M., Kahn, J. H., (2014). Exposure to family violence and attachment styles as predictors of dating violence perpetration among men and women: A mediational model. *Journal of Interpersonal Violence*, 29, 20-43. doi:10.1177/0886260513504644

Litrownik, A. J., Lau, A., English, D. J., Briggs, E., Newton, R. R., Romney, S., & Dubowitz, H. (2005). Measuring the severity of child maltreatment. *Child Abuse & Neglect*, 29, 553-573. doi:10.1016/j.chiabu.2003.08.010

McKee, J. R., & Payne, B. K. (2014). Witnessing domestic violence as a child and adulthood emotionality: Do adults “feel” the consequences of exposure to partner abuse later in the life course?. *Journal of Aggression, Maltreatment & Trauma*, 23, 318-331. doi:10.1080/10926771.2014.881947

Mihalic, S. W., & Elliott, D. (1997). A social learning theory model of marital violence. *Journal of family violence*, 12, 21-47.

- Milletich, R. J., Kelley, M. L., Doane, A. N., & Pearson, M. R. (2010). Exposure to interparental violence and childhood physical and emotional abuse as related to physical aggression in undergraduate dating relationships. *Journal of Family Violence, 25*, 627-637.  
doi:10.1007/s10896-010-9319-3
- Millett, L. S., Kohl, P. L., Jonson-Reid, M., Drake, B., & Petra, M. (2013). Child maltreatment victimization and subsequent perpetration of young adult intimate partner violence an exploration of mediating factors. *Child maltreatment, 18*, 71-84.  
doi:10.1177/1077559513484821
- Muthén, L. K., & Muthén, B. (1998-2012). Mplus user's guide. Los Angeles, CA: Muthén & Muthén.
- Nock, M. K., Wedig, M. M., Holmberg, E. B., & Hooley, J. M. (2008). The emotion reactivity scale: development, evaluation, and relation to self-injurious thoughts and behaviors. *Behavior Therapy, 39*, 107-116. doi:10.1016/j.beth.2007.05.005
- Renner, L. M., & Whitney, S. D. (2012). Risk factors for unidirectional and bidirectional intimate partner violence among young adults. *Child Abuse & Neglect, 36*, 40-52.  
doi:10.1016/j.chiabu.2011.07.007
- Rennison, C. M., & Welchans, S. (2000). Intimate partner violence. Washington, DC: U.S. Department of Justice. Retrieved from <http://www.bjs.gov/content/pub/pdf/ipv.pdf>
- Rivera, P. M., & Fincham, F. (2015). Forgiveness as a mediator of the intergenerational transmission of violence. *Journal of interpersonal violence, 30*, 895-910.  
doi:10.1177/0886260514539765

- Roesch, S. C., Villodas, M., & Villodas, F. (2010). Latent class/profile analysis in maltreatment research: A commentary on Nooner et al., Pears et al., and looking beyond. *Child abuse & neglect, 34*, 155-160. doi:10.1016/j.chiabu.2010.01.003
- Rosen, k. H., Bartle-haring, S., & Stith, S. M. (2001). Using Bowen theory to enhance understanding of the intergenerational transmission of dating violence. *Journal of Family Issues, 22*, 124-142. doi:10.1177/019251301022001006
- Simons, L. G., Simons, R. L., Lei, M. K., Hancock, D. L., & Fincham, F. D. (2012). Parental warmth amplifies the negative effect of parental hostility on dating violence. *Journal of Interpersonal Violence, 27*, 2603-2626. doi:10.1177/0886260512436387
- Skowron, E. A., & Friedlander, M. L. (1998). The Differentiation of Self Inventory: Development and initial validation. *Journal of Counseling Psychology, 45*, 235-246. doi:10.1037/0022-0167.45.3.235
- Smith, C. A., Ireland, T. O., Park, A., Elwyn, L., & Thornberry, T. P. (2011). Intergenerational continuities and discontinuities in intimate partner violence: A two-generational prospective study. *Journal of Interpersonal Violence, 26*, 3720-3752.
- Sterba, S. K., & Bauer, D. J. (2010). Matching method with theory in person-oriented developmental psychopathology research. *Development and Psychopathology, 22*, 239–254. doi:10.1017/S0954579410000015
- Stith, S. M., Rosen, K. H., Middleton, K. A., Busch, A. L., Lundeberg, K., & Carlton, R. P. (2000). The intergenerational transmission of spouse abuse: A meta-analysis. *Journal of Marriage and Family, 62*, 640–654. doi:10.1111/j.1741-3737.2000.00640.x

- Straus, M. A., & Gozjolko, K. L. (2014). "Intimate terrorism" and gender differences in injury of dating partners by male and female university students. *Journal of Family Violence, 29*, 51-65. doi:10.1007/s10896-013-9560-7
- Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The revised Conflict Tactics Scales (CTS2): Development and preliminary psychometric data. *Journal of Family Issues, 17*, 283-316. doi:10.1177/019251396017003001
- Sullivan, T. P., McPartland, T. S., Armeli, S., Jaquier, V., & Tennen, H. (2012). Is it the exception or the rule? Daily co-occurrence of physical, sexual, and psychological partner violence in a 90-day study of substance-using community women. *Psychology of Violence, 2*, 154–164. doi:10.1037/a0027106
- Swartout, K. M., & Swartout, A. G. (2012). Shifted perspectives: Applying person-oriented analyses to violence research. *Psychology of Violence, 2*, 309-312. doi:10.1037/a0029910
- Teicher, M., Samson, J., Polcari, A., & McGreenery, C. (2006). Sticks, stones, and hurtful words: relative effects of various forms of childhood maltreatment. *American Journal of Psychiatry, 163*, 993-1000. doi:10.1176/appi.ajp.163.6.993
- Villodas, M. T., Litrownik, A. J., Thompson, R., Roesch, S. C., English, D. J., Dubowitz, H., ... & Runyan, D. K. (2012). Changes in youth's experiences of child maltreatment across developmental periods in the LONGSCAN consortium. *Psychology of Violence, 2*, 325-338. doi:10.1037/a0029829
- von Eye, A., & Bergman, L. R. (2003). Research strategies in developmental psychopathology: Dimensional identity and the person-oriented approach. *Development and Psychopathology, 15*, 553–580. doi:10.1017/S0954579403000294

von Eye, A., & Bogat, G. A. (2006). Person-oriented and variable-oriented research: Concepts, results, and development. *Merrill-Palmer Quarterly*, *52*, 390-420.

doi:10.1353/mpq.2006.0032

Wei, M., Vogel, D. L., Ku, T. Y., & Zakalik, R. A. (2005). Adult attachment, affect regulation, negative mood, and interpersonal problems: The mediating roles of emotional reactivity and emotional cutoff. *Journal of Counseling Psychology*, *52*, 14-24. doi:10.1037/0022-

0167.52.1.14

Whiting, J. B., Simmons, L. A., Havens, J. R., Smith, D. B., & Oka, M. (2009). Intergenerational transmission of violence: The influence of self-appraisals, mental disorders and substance abuse. *Journal of Family Violence*, *24*, 639-648. doi:10.1007/s10896-009-9262-3

Table 1

*Categorical indicators that informed the latent class analyses (coded 1 = yes, 0 = no).*

	Number of participants endorsing a particular construct	
	Yes	No
Exposure to interparental violence		
Father-to-mother		
Physical assault minor	26	122
Psychological aggression minor	96	52
Physical assault severe	8	140
Psychological aggression severe	27	121
Mother-to-father		
Physical assault minor	23	148
Psychological aggression minor	100	48
Physical assault severe	8	140
Psychological aggression severe	19	129
Experienced Maltreatment		
Father perpetrated		
Physical abuse	34	115
Psychological abuse	90	59
Mother perpetrated		
Physical abuse	75	75
Psychological abuse	131	19
Intimate Partner Violence		
Perpetrated		
Physical assault minor	46	104
Psychological aggression minor	112	38
Physical assault severe	11	139
Psychological aggression severe	26	124
Victimization		
Physical assault minor	33	117
Psychological aggression minor	102	48
Physical assault severe	6	144
Psychological aggression severe	13	137

Table 2

*Fit indices for latent class models.*

Model	AIC	BIC	A-BIC	Entropy	LMRT	Classes: <i>n</i> , %
1 Class	2804.82	2865.04	2801.74	N/A	N/A	1. <i>n</i> = 150, 100%
2 Class	2537.89	2661.32	2531.57	.96	$p < .001$	1. <i>n</i> = 100, 66.67% 2. <i>n</i> = 50, 33.33%
3 Class	2379.72	2566.38	2370.16	.96	$p < .01$	1. <i>n</i> = 27, 18.00% 2. <i>n</i> = 71, 47.33% 3. <i>n</i> = 52, 34.67%
4 Class	2334.63	2585.51	2321.83	.95	<i>ns</i>	1. <i>n</i> = 64, 42.67% 2. <i>n</i> = 38, 25.33% 3. <i>n</i> = 34, 22.67% 4. <i>n</i> = 14, 9.33%
5 Class	2312.48	2625.58	2296.44	.95	$p < .05$	1. <i>n</i> = 15, 10.00% 2. <i>n</i> = 26, 17.33% 3. <i>n</i> = 58, 38.67% 4. <i>n</i> = 15, 10.00% 5. <i>n</i> = 36, 24.00%

*Note:* AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; A-BIC = Sample Size Adjusted BIC; LMRT = Lo-Mendell-Rubin Adjusted LRT; N/A = not available; *ns* = not significant

Table 3

*Emerging adult descriptive statistics and mean differences on reports of childhood family environments and emotional reactivity as a function of class membership (N = 150).*

	Overall Sample	Three class Solution		
		Class 1 “Full Transmission” (n = 27)	Class 2 “Psychological Transmission” (n = 71)	Class 3 “No Transmission” (n = 52)
Average Age ( <i>SD</i> )	20.20(1.47)	20.26 (.90)	20.13(1.80)	20.27(1.25)
Sex				
Female	141 (94%)	25 (93%)	66 (93%)	50 (96%)
Male	9 (6%)	2 (7%)	5 (7%)	2 (4%)
Relationship status				
Single	61 (41%)	14 (52%)	26 (37%)	21 (40%)
Dating someone	16 (11%)	2 (7%)	7 (10%)	7 (14%)
LT dating relationship	62 (41%)	7 (26%)	33 (47%)	22 (42%)
Dating around	7 (5%)	2 (7%)	3 (4%)	2 (4%)
Engaged	2 (1%)	1 (4%)	1 (1%)	- (0%)
Married	2 (1%)	1 (4%)	1 (1%)	- (0%)
Current family form				
Intact	96 (64%)	12 (44%)	48 (68%)	36 (69%)
Separated/divorced	27 (18%)	10 (37%)	13 (18%)	4 (8%)
Stepfamily	15 (10%)	5 (19%)	7 (10%)	3 (6%)
Never married	5 (3%)	- (0%)	2 (3%)	3 (6%)
Other	7 (5%)	- (0%)	1 (1%)	6 (11%)
Annual family income				
Below 30k	12 (8%)	4 (15%)	3 (4%)	5 (9%)
30k – 50k	29 (19%)	8 (29%)	10 (14%)	11 (21%)
50k – 100k	52 (35%)	7 (26%)	29 (41%)	16 (31%)
Above 100k	47 (31%)	7 (26%)	24 (34%)	16 (31%)
Do not know	10 (7%)	1 (4%)	5 (7%)	4 (8%)
Parents currently violent towards each other?				
Yes	3 (2%)	2 (7%)	1 (1%)	- (0%)
No	147 (98%)	25 (93%)	70 (99%)	52 (100%)
Distal outcome <i>M (SD)</i>				
Family-of-origin cohesion, accord, and closeness	58.46 (10.59)	51.52 (13.78) <sup>1,2</sup>	56.99 (9.00) <sup>1,3</sup>	64.08 (7.66) <sup>2,3</sup>
Emotional Reactivity	2.08 (.72)	2.48 (.82) <sup>1,2</sup>	1.97(.63) <sup>1</sup>	2.01(.72) <sup>2</sup>

*Note:* Matching superscripts denote significant post hoc differences; *M* = mean; *SD* = standard deviation; LT = long-term.

Figure 1: Conditional response probabilities for a three class solution.

