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## Polyvictimization: Exploring Correlates and Consequences

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## ABSTRACT

### POLYVICTIMIZATION: EXPLORING CORRELATES AND CONSEQUENCES

By

KATELYN PAIGE HANCOCK

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Committee Chair: Dr. Leah E. Daigle

Major Department: Criminal Justice and Criminology

Since its conceptualization by Finkelhor et al. (2005), the phenomenon of polyvictimization (i.e., experiencing multiple types of victimization) has been widely studied. Past reviews have assessed works examining polyvictimization among children and adolescents, but there appears to be no systematic review exploring polyvictimization correlates and consequences among adults. Thus, Chapter II presents a systematic review examining the correlates and consequences of polyvictimization among adults. Additionally, few works have longitudinally examined individual-level correlates of polyvictimization, such as personality traits. As such, there was a clear need for research in this area able to establish time order between personality type and experiencing polyvictimization (i.e., Chapter III). Finally, many polyvictimization consequences have been explored but few studies have examined academic performance. Chapter IV fills this gap by examining how experiencing polyvictimization may impact GPA, mental health-related, physical health-related, and substance use-related academic performance. These chapters provide a set of unique but interconnected findings. First, the most common definition and measurement strategy for polyvictimization was to define it as

experiencing two or more types, but use of broad or specific victimization types varied. Prior victimization was the most consistent correlate of polyvictimization, and depression was the most consistent consequence of polyvictimization across studies. Second, when examining the Big Five personality traits (i.e., agreeableness, conscientiousness, neuroticism, openness, extraversion) as a correlate of polyvictimization with longitudinal data, openness and agreeableness were the only significant correlates of polyvictimization. Third, compared to non-polyvictims, polyvictims had significantly greater odds of having a lower GPA, and academic performance issues related to mental health, physical health, and substance use. From these findings, it is clear that identifying and understanding the correlates and consequences of polyvictimization are deserving of further study and awareness. Service providers should work toward an individual-level, tailored approach to assist those who are experiencing polyvictimization and develop intervention programs based on relevant risk factors to prevent its occurrence.

POLYVICTIMIZATION: EXPLORING CORRELATES AND CONSEQUENCES

BY

KATELYN PAIGE HANCOCK

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of the Requirements for the Degree  
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of  
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## DEDICATION

This dissertation is dedicated to the survivors of violence who experience something incredibly unfair and persist despite the weight of these experiences. To those who are struggling to persevere, please keep going. There is light. This dissertation is also dedicated to the first-generation college students who have and continue to walk into unknown worlds to conquer their fears and pursue their futures.

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you for being one of my biggest cheerleaders and single-handedly supplying all of my laundry detergent for the past five years. I love you, Caleb, Travis, and Josh. To my best friend since kindergarten who became my sister, Courtney, our weird Facebook memories have given me laughs when I desperately needed them, and I am so thankful to have you to lean on. To all of my family members, thank you for helping me through this wild ride. I also have to acknowledge my best fur friend, favorite good girl, Sage.

Finally, I would like to acknowledge my friends, who have become family along the way. To Aly, you are my Bee Rock partner, Mystic Falls adventurer, and long-time best friend. I am not sure where I would be without your friendship. To Chynna, I would not be where I am today without the many texts and phone calls that we have had. You are the most hardworking, amazing person and mom, and I am so thankful to call you my best friend. During my time in graduate school, I also met some friends that I know will be with me for the long haul and would like to acknowledge them. To Tessa and Shanna, you both have been a mentor and best friend to me, and our group message has been a safe haven that I will cherish and laugh about for many years to come. I cannot wait to see where we go from here. To David, I am pretty sure we were fated to be best friends after meeting during orientation, and I am so glad to have had your support and friendship these past three years. To Sarah, I remember when we first started working on CJGSA projects together and knew we would become great friends. Your uplifting advice and support has been invaluable over the years.

Those who know me know that I made a list a mile long of those who I wanted to formally acknowledge, but if I learned anything from graduate school about writing, it is to get to the point. Thus, my list is not as long as my heart is full by all of you who have impacted me throughout this journey, and to you my friends, I say thank you.

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## **CHAPTER I: INTRODUCTION**

### **Introduction**

Researchers first used polyvictimization to refer to experiencing multiple types of victimization in samples of children and adolescents (Finkelhor, Ormrod, & Turner, 2007; Finkelhor, Ormrod, Turner, & Hamby, 2005). These victimization incidents, as initially conceptualized, included a wide range of victimization concepts (e.g., experiencing war/ethnic conflict, property victimization, interpersonal victimizations, neglect, witnessing/indirect victimizations) (Finkelhor et al., 2005). Polyvictimization prevalence estimates vary depending on measurement and definitions, but it is quite common among both children/adolescents and adults. For example, using the Juvenile Victimization Questionnaire (JVQ), Finkelhor et al. (2005, 2007) found that about 22% of 2 to 17-year-old children in their national sample had experienced polyvictimization. Cyr et al. (2014) also used the JVQ in their survey, finding that 42% of children, ages 2-11, experienced more than one type of victimization, and 22% of children experienced four or more types of victimization. Ford et al. (2010) found that 32% of adolescents, ages 12-17, in their National Survey of Adolescents (NSA) sample had experienced polyvictimization.

Other research has also focused on polyvictimization among college student samples. For example, Banyard et al. (2020) found that only about 13% of students had experienced two or more types of victimization. Similarly, Wood and colleagues (2020) found that 12% of female college students had experienced polyvictimization, but Ross et al. (2019) found a somewhat higher estimate (21%) of polyvictimization in their college sample. Even higher estimates have been found as well. For example, Snyder and colleagues (2021) found that 32% of their female college sample identified as being a polyvictim, and Sargent and colleagues (2016) found that 37% of first-year college students experienced polyvictimization. Given its prevalence,

polyvictimization is important to examine, but it is also vital to understand the correlates and consequences that may be related to experiencing polyvictimization.

### **Synthesizing the Polyvictimization Literature**

As evidenced by the wide variations in prevalence estimates, the polyvictimization literature is inconsistent in terms of what researchers define as polyvictimization and how they choose to measure it. Thus, further work refining, gathering, and synthesizing this literature is critical for improving reliability and validity of its measures, establishing trends, producing theoretical perspectives tied to polyvictimization and its related factors, and developing interventions to prevent or reduce its occurrence. In addition to these issues, a review synthesizing the literature on the correlates and consequences of polyvictimization among adults does not yet exist. My first paper fills this gap in the polyvictimization literature and adds to an existing review of polyvictimization among older adults (Ramsey-Klawnsnik, 2017). This review will provide a concise and comprehensive assessment of both correlates and consequences of polyvictimization among adults, which could potentially act as a single document to inform practitioners about how to approach treating polyvictims and creating prevention methods. It can also act as a leading resource for researchers to inform their own research on polyvictimization.

### **Correlates of Polyvictimization**

In addition to the need for a polyvictimization systematic review among adults, it is also important to identify and attempt to better understand the correlates of polyvictimization among other groups because researchers can then inform practitioners about what risk factors to target. If researchers and practitioners can work together to target risk factors in late adolescence and

early adulthood, then we may see a reduction in polyvictimization among adults. Few studies examine factors as predictors of polyvictimization, but the studies that do have identified several correlates of polyvictimization (Chan, Chen, & Chen, 2021; Kaasa et al., 2016; Snyder et al., 2021). Specifically, this body of research has found the following to be correlates of polyvictimization: holding greater negative views about campus officials' response to misconduct (Kaasa et al., 2016), binge drinking, having an increased number of sexual partners, being a member of a sorority, having a mental disability, being bisexual, having an eating disorder, being younger, and being single (Snyder et al., 2021). Of interest, a meta-analysis examining family polyvictimization has shown that depression and PTSD, as well as experiencing one type of victimization is significantly correlated with polyvictimization (Chan et al., 2021).

Despite there being some works that frame polyvictimization as an outcome, few works do so using longitudinal data (Finkelhor et al., 2009; Tanksley et al., 2020). Specifically, Finkelhor and colleagues (2009) used three waves from the Developmental Victimization Survey to examine pathways to polyvictimization. Their findings showed that emotional problems significantly predicted experiencing polyvictimization among younger children (i.e., ages 2-9), while living in a dangerous community, living with a dangerous family, and having a problematic family environment were all significant predictors of polyvictimization among older children (i.e., ages 10-17). Similarly, Tanksley et al. (2020) used data from the Environmental Risk Longitudinal Twin Study to explore the relationship between cognitive/psychological factors and polyvictimization. Their study showed that self-control and symptoms of conduct disorder and anxiety all significantly predict polyvictimization experiences, but after controlling

for family environment and genetic factors, only self-control remained significant (Tanksley et al., 2020).

The above studies suggest that using longitudinal data to examine pathways to polyvictimization can yield implications relevant to intervention design. Researchers have recently opened the door to exploring aspects of personality domains as possible correlates of polyvictimization (Kerig & Modrowski, 2018; Tanksley et al., 2020), but there is still more work to be done. Specifically, research has yet to explore a full personality assessment such as the Big Five (i.e., agreeableness, conscientiousness, neuroticism, openness, and extraversion as derived from the revised NEO personality inventory) using longitudinal data. Moreover, personality is often viewed as a stable trait. According to population (risk) heterogeneity perspectives, stable traits or factors that place someone at risk for victimization will continue to place them at risk for victimization, if those traits or factors remain unchanged (Sparks, 1981). Thus, it may be beneficial to explore this relationship to increase researchers and practitioners understanding about how to better tailor intervention methods to individuals, as well as how to prevent future victimization experiences in later adulthood.

### **Consequences of Polyvictimization**

Compared to the research on correlates of polyvictimization, more attention has been given to the consequences of polyvictimization. Specifically, we know that polyvictims may report depressive symptoms, substance use disorders (Ford et al., 2010), posttraumatic stress (Sabina & Straus, 2008), trauma symptoms (Cyr et al., 2014; Finkelhor et al., 2007), negative physical health problems (Scheiderman et al., 2013), psychological distress (Richmond et al., 2009; Turner et al., 2017), internalizing disorders (Rapsey et al., 2019), physical and

interpersonal distress (Edwards et al., 2014), poor academic adjustment (Elliot et al., 2009), poor academic performance (Banyard et al., 2020; Welsh et al., 2014), and attachment dysfunction (Ross et al., 2019). They may also face other chronic stressors or non-violent traumatic events such as accidents, serious illness, natural disasters, imprisonment of parental figure, family substance abuse issues, and/or witnessing parental figures arguing (Finkelhor et al., 2009; Finkelhor et al., 2011).

Many of these consequences have been identified by examining child or adolescent samples (Cyr et al., 2014; Finkelhor et al., 2005, 2007, 2009; Turner et al., 2010; Turner et al., 2017) or adult samples that retrospectively assess childhood polyvictimization (Alexander, Amerigo, & Harrelson, 2018; Charak et al., 2016; Edwards et al., 2014; Elliot et al., 2009; Rapsey et al., 2019; Richmond et al., 2009; Welsh et al., 2014). In addition to these studies, one systematic review (Haahr-Pedersen et al., 2020) and one meta-analysis have been conducted examining polyvictimization and its related consequences among children and adolescents (Le et al., 2018).

There are still gaps to be filled within the polyvictimization consequences literature. As shown earlier, polyvictimization is associated with a wide range of negative consequences; yet, little is known about how polyvictimization may shape college life, especially academic performance. Only a few studies examine variations of academic performance as it relates to polyvictimization and most use childhood/adolescent polyvictimization measures (Elliot et al., 2009; Welsh et al., 2014). Specifically, Elliot et al. (2009) found that, among college women, when compared to individual childhood victimization categories, polyvictimization has the largest impact on college adjustment scores (Elliot et al., 2009). Similarly, Welsh et al. (2014) found that higher childhood maltreatment scores assessing emotional abuse/neglect, physical

abuse/neglect, and sexual abuse (i.e., polyvictimization) were related to decreases in GPA and college adjustment scores. To my knowledge, only one study has examined polyvictimization during adulthood and academic performance. Banyard et al. (2020) found that college students who experienced four different types of victimization (i.e., stalking, intimate partner violence, unwanted sexual contact, and unwanted sexual intercourse) had greater negative academic outcomes (i.e., academic efficacy, collegiate stress, institutional commitment, scholastic conscientiousness) than those who experienced no victimization, one type, two types, or three types of victimization.

More research examining the relationship between polyvictimization and academic performance among college students and how victimization may shape their lives is needed. The polyvictimization and academic performance paper fills this gap by examining academic performance through self-reported GPA and also how polyvictims differ on self-reported measures assessing how mental health, physical health, and substance use issues have impacted their academic performance using a national sample of college students. Exploring these gaps are important because if polyvictimization affects students' academic performance in negative ways, it may ultimately hinder their academic progress and the opportunities presented to them in the future.

### **Theoretical Perspectives**

Much of this work examines polyvictimization via atheoretical perspectives, but there are several theoretical perspectives that can help explain polyvictimization's relationship to correlates (i.e., state dependence, risk heterogeneity) and consequences (i.e., trauma exposure). For example, theories can be drawn from the recurring victimization literature to assess

polyvictimization and its correlates, such as state dependence (Farrell, Phillips, & Pease, 1995) and population (risk) heterogeneity (Sparks, 1981) perspectives of victimization. The state dependence perspective stipulates that a victim and/or offender experience a change in themselves or their environment during a victimization event that then impacts their future risk for victimization in positive or negative ways (Clay-Warner, Bunch, & McMahon-Howard, 2016; Farrell et al., 1995). Past research supports this perspective (Fisher, Daigle, & Cullen, 2010; Fisher, Daigle, Cullen, & Santana, 2007; Lauritsen and Quinet, 1995). Specifically, Fisher and colleagues (2010) found that using self-protective actions during the first incident of sexual victimization significantly distinguished recurring victims from single victims. Someone may unsuccessfully attempt to fight back against being raped, and they may begin to feel helpless when they realize their efforts did not help them. When faced with being assaulted at a later time, they do not attempt to fight back because they learned from the initial event that fighting back did not work. By contrast, the population (risk) heterogeneity perspective states that individuals already have relatively stable characteristics that place them at greater risk of experiencing victimization and victimization will continue until those characteristics are changed (Clay-Warner et al., 2016; Daigle & Harris, 2018; Sparks, 1981). For example, Daigle and Teasdale (2018) found that psychopathic traits could be used to distinguish between both single-wave victims and recurring victims and non-victims and recurring victims.

Researchers can also examine polyvictimization and its effects via a trauma exposure lens. Trauma exposure perspectives provide guidance on why someone who experiences victimization may report increased psychopathology symptoms that can then affect their daily lives. Specifically, meta-analyses have shown that individuals who experience victimization (i.e., a form of trauma) often report increased symptoms of psychopathology, especially suicidality

and PTSD (see Dworkin, DeCou, & Fitzpatrick, 2020; Dworkin, Menon, Bystrynski, & Allen, 2017). These symptoms may then negatively impact individuals' daily activities, such as their career, relationships, or academic functioning.

Using the perspectives discussed above, my dissertation contributes to the polyvictimization literature with three interconnected individual papers. This three-paper dissertation allows me to thoroughly examine the correlates and consequences of polyvictimization in a systematic review piece (i.e., my first paper) and contribute two unique data-driven papers to the polyvictimization literature – one examining possible correlates and another examining a possible outcome. More specifically, my second paper examines the Big Five personality traits and polyvictimization using a longitudinal sample, and my third paper examines how polyvictimization may impact academic performance among a national level sample of college students.

## CHAPTER II: POLYVICTIMIZATION: A SYSTEMATIC REVIEW OF CORRELATES AND CONSEQUENCES AMONG ADULTS

### Introduction

Polyvictimization is a complex health problem affecting thousands and likely hundreds of thousands of people every year. The issue with this form of victimization, however, is that it is highly under researched. Aside from studies that use national-level sub-samples of children, adolescents, older adults, and college students, we do not have a clear picture of the correlates or consequences of polyvictimization. Much of these problems stem from the fact that the literature on polyvictimization is inconsistent in terms of what constitutes polyvictimization. For example, Finkelhor et al.'s (2005) initial definition for polyvictimization considered children who experienced four or more types of victimization within the past year to be polyvictims, which was derived from the mean number of types experienced. Later work by Finkelhor and colleagues (2011) defined polyvictims as children who experienced the most types of victimization (i.e., the top 10%). Moreover, these seminal works using the Juvenile Victimization Questionnaire to measure polyvictimization include forms of interpersonal victimization but also experiencing war/ethnic conflict, property victimization, neglect, and witnessing/indirect victimizations (Finkelhor et al., 2005; 2007). Most studies tend to include polyvictimization measures that are comprised of forms of victimization rather than more broad traumatic events such as war/ethnic conflict, natural disasters, car accidents, and similar non-victimization specific traumas. Despite opposing views on what types may entail, researchers largely define polyvictimization as experiencing *multiple* types.

Past research has provided insight into some of these issues by summarizing findings from the polyvictimization literature among certain groups of people and certain areas. Specifically, systematic reviews have been conducted examining polyvictimization among

studies using the Juvenile Victimization Questionnaire (Haahr-Pedersen et al., 2020), youth in low-and-lower-middle income countries (Le et al., 2018), foster youth (Loomis et al., 2020), youth with specific disorders (Hellström, 2019), older adults (Nuccio & Stripling, 2021; Ramsey-Klawnsnik, 2017), and families (Chan et al., 2021). For example, Haahr-Pedersen et al. (2020) conducted a systematic review of studies using the Juvenile Victimization Questionnaire to examine polyvictimization as a risk factor for developing forms of psychopathology among youth (i.e., ages 0-17). Their review included 22 studies and showed that polyvictimization was consistently a significant predictor of psychopathology for internalizing and externalizing disorders, as well as for psychological distress more generally (Haahr-Pedersen et al., 2020). Similarly, Le et al. (2018) examined polyvictimization among studies that sampled youth but limited their review to those conducted in low-and-lower-middle income countries. Their findings also showed that experiencing polyvictimization is significantly associated with increased health risk behaviors and mental health issues, and polyvictimization appears to be more prevalent among youth residing in low-and-lower-middle income countries than countries that are classified as being high or upper-middle income (Le et al., 2018). In contrast to specific locations, other reviews have focused on specific populations of youth, such as those with Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD). For example, Hellström, (2019) reviewed the literature focusing on polyvictimization among children (i.e., 19 or younger) with ASD and ADHD. They found few studies reporting prevalence estimates for polyvictimization, but when examining the different types used to create polyvictimization measures, peer/sibling victimization was the most prevalent type (Hellström, 2019).

Of interest to the current review, other researchers have taken note of the problems with polyvictimization measurement. More specifically, Loomis and colleagues (2020) sought to review the measurement techniques of self-reported polyvictimization among foster youth samples, and they found a lack of tailored victimization questions, meaning many of the studies failed to include recall periods, perpetrator type, and relevant measures of victimization for this specific population (e.g., community violence, emotional abuse). Additionally, Loomis et al. (2020) raises a concern that will also be discussed in this review regarding how studies use a wide variety of measurement techniques to compute polyvictimization (e.g., dichotomies, continuous, cumulative risk index, number of types, types included).

In contrast to the reviews focusing on youth, within the elder abuse literature, there are also reviews dedicated to polyvictimization among older adult populations. As an example, Ramsey-Klawnsnik (2017) conducted a review of the literature focused on polyvictimization of older adults. They found that older adults are particularly vulnerable to polyvictimization by a multitude of perpetrators (e.g., partners, family, service providers, care facility staff or other residents) and can experience severe harms (e.g., permanent disability, hospitalization, death, severe mental health problems, loss of independence, total financial and/or asset loss). Other reviews have made attempts to assess polyvictimization in later life but have been unsuccessful. For instance, Nuccio and Stripling (2021) conducted a scoping review hoping to examine resilience and post-traumatic growth as it relates to polyvictimization among older adults. Despite using the term polyvictimization in the title of their article, they were only able to identify one study that examined these concepts related to polyvictimization, but they do find an association between resiliency, post-traumatic growth, and PTSD from traumatic events (e.g., Holocaust, World War II, natural disasters, cancer, family deaths) (Nuccio & Stripling, 2021).

In addition to reviews focused on sub-groups of youth and older adults, researchers have also conducted meta-analyses that contain systematic reviews examining family polyvictimization (e.g., experiencing multiple forms of victimization – IPV, child abuse, neglect, elder abuse, in-law abuse – reported by different members from same family) (Chan, 2017). For example, Chan et al. (2021) examined the prevalence and correlates of family polyvictimization. Their results showed that among general family samples, about 10% had experienced polyvictimization. However, among studies that used clinical samples of families, 36% had experienced polyvictimization (Chan et al., 2021). In regard to correlates, experiencing one type of victimization, depression, and PTSD were all significant correlates of polyvictimization (Chan et al., 2021).

As can be seen, existing polyvictimization reviews focus largely on specific groups, locations, and/or concepts, and to my knowledge, there are no reviews that examine polyvictimization among adults more generally. In addition to there not being a review piece examining polyvictimization among adults, there also does not appear to be a systematic review that examines a variety of correlates and consequences. Thus, a gap exists within the literature that needs to be filled. The current systematic review fills this gap by providing a comprehensive examination of a range of correlates and consequences associated with adult polyvictimization. This review may be beneficial for researchers sharing recommendations with practitioners on how to approach and treat those who have experienced polyvictimization, and it may inform prevention efforts on potential salient risk factors for experiencing this phenomenon.

## **Review Framework**

Systematic reviews are often designed and followed through with based on specific frameworks. Researchers have designed many acronyms to guide their reviews and search strategies, but two of the most popular frameworks are the UTOS and the PICOS. The UTOS and PICOS frameworks were initially designed to guide studies that examined quantitative clinical review research questions (Methley et al., 2014) but are versatile and can easily be modified to accommodate qualitative reviews. UTOS stands for Units (i.e., persons who receive treatment), Treatments, Observations (i.e., measures), and Settings (i.e., where study takes place) (Pigott, 2014). The UTOS framework acts as a guide for researchers to follow when generalizing to the population that they are studying (Pigott, 2014). It also assists researchers in designing their search strategy and reminds researchers what their overarching objective is, allowing them to stay on track when discussing their findings.

A second popular framework and the one that is used in the current systematic review is the PICOS tool, which assists researchers in designing a research question and devising a solid search strategy (Methley et al., 2014). PICOS was initially designed to stand for Population, Intervention, Comparison, Outcomes, and Study design (Methley et al., 2014), but researchers have adapted this framework for qualitative work. In this adaptation, PICOS stands for Population/Problem (i.e., problem/condition want to study), Interest (e.g., event, activity, experience), Context (i.e., distinct characteristics or setting), and Study design (i.e., type of study designs to be considered) (Murdoch University, 2022). Due to my broad examination of both risk factors and outcome measures, I have used the adapted version of the PICOS tool for framing systematic review questions and search strategies.

For my review, the problem or area of study is polyvictimization. Polyvictimization is an understudied area, especially using adult samples; yet, much of the literature using adult samples indicates that those who have experienced polyvictimization also report serious negative health issues and problematic behaviors (Alexander et al., 2018; Banyard et al., 2020; Charak et al., 2016; Edwards et al., 2014; Elliot et al., 2009; Kaasa et al., 2016; Rapsey et al., 2019; Richmond et al., 2009; Ross et al., 2019; Sabina & Straus, 2008; Sargent et al., 2016; Welsh et al., 2014).

The interest of the review is to look at correlates and consequences of polyvictimization. This area of research has examined a wide range of both correlates and consequences related to polyvictimization, but the literature is not organized in an easily digestible format and conclusions around the common correlates and consequences of polyvictimization for adults have not been made. These gaps contribute to the need for a review to synthesize this area.

The context (or characteristics) of this review includes adults over the age of 18 because there are no systematic reviews or meta-analyses that examine this population specifically. Additionally, a review of adults and polyvictimization is needed because the reviews examining childhood/adolescent polyvictimization are not necessarily generalizable to adult populations. The experiences of children and adolescents are much different than those of adults. Specifically, there may be variation in types of victimization experienced. For example, children and adolescents likely experience child abuse, neglect, and bullying, whereas adults may be more susceptible to intimate partner violence or stalking. Similarly, children and adolescents generally lead different lifestyles and have different commitments than adults. As an example, adults often hold full-time jobs, which may introduce victimization while in the workplace, but adolescents may begin attending parties and distancing themselves from their guardians, which impacts victimization risk by introducing them to motivated offenders. Age differences also likely affect

how polyvictims receive or seek help. For instance, children may not understand what is happening to them and be unable to tell an adult that they are being harmed, especially if they are victimized by a guardian. By contrast, an adolescent may fear seeking out help for fear of their efforts getting back to a guardian, especially if the victimization incident(s) happened while engaging in forbidden behavior. In this way, it may seem like adults would then have the best chance at seeking or receiving help, but there may also be reasons preventing them from doing so, such as being unable to leave an abusive partner due to financial abuse or fear of removing a parent from their children. Thus, lifestyles are age-graded and experiences that may affect both the correlates and consequences of polyvictimization may also be different for adults compared to younger persons.

All study design types, aside from review articles, were considered for this review. Specifically, any quantitative or qualitative study design that identified both polyvictimization during adulthood and some correlate or consequence were assessed for inclusion. Studies that use cross-sectional data, longitudinal data, qualitative data, or clinical trials, and any form of sampling methodology were considered.

## **Objectives**

In order to provide an essential and leading document for researchers and practitioners to use in designing prevention and intervention strategies for adults experiencing polyvictimization, the aim of the current review is to examine the existing research on polyvictimization correlates and consequences among adults. The review has two main research questions: (1) What are the most common correlates and consequences associated with polyvictimization? (2) What are the

most common conceptualizations of polyvictimization? To address these questions, the current review employed the following methodological techniques.

## **Methods**

### **Eligibility Criteria**

The current systematic review has a very wide scope, including studies from any country, as well as published and unpublished works. Due to the limited number of studies examining polyvictimization among adults (i.e., 18 and older), this review does not employ date restrictions. There are existing reviews focusing on older adults, but many of the samples within the literature do not cap their sample at specific older adult thresholds. Thus, no age limiter was imposed aside from 18 years old and older. The term polyvictimization was first coined in Finkelhor and colleagues' (2005) seminal work, so it was expected that most works examining this area would not have dates preceding 2005. However, with this concept also being termed multiple victimization in the past, it was plausible that studies would be found prior to this date, and search terms were included to accommodate this. All studies examining polyvictimization and its association to some form of correlate or consequence were eligible. This review draws from Finkelhor et al.'s (2005) initial conceptualization of polyvictimization (experiencing war/ethnic conflict, property victimization, interpersonal victimizations, neglect, witnessing/indirect victimizations), but for this review, only forms of victimization were considered. Specifically, studies that included experiencing traumatic events (e.g., family member death, war, car accident, natural disaster) were not considered for analysis, but studies that examined neglect, emotional abuse, or coercive control as a form of interpersonal victimization (e.g., instances of

intentionally hurting a specific person) within their polyvictimization measures were eligible. This decision was made based on the limited research within this area and because past literature has found that coercive control and/or psychological abuse often have detrimental effects, sometimes even greater effects than “traditional” (e.g., physical assault) forms of victimization (Hayes & Kopp, 2020; Sackett & Saunders, 1999; Stark, 2007). Finally, any study with a polyvictimization measure that was defined as experiencing at least two or more types during adulthood was eligible.

### ***Inclusion Criteria***

Studies were selected based on the following inclusion criteria: (1) Any study design that examined association between polyvictimization and a correlate or consequence; (2) Study used an all adult (i.e., 18 years or older) sample; (3) Study used a polyvictimization measure that assessed victimization experiences during adulthood; (4) Study used a polyvictimization measure that focused on interpersonal victimization as defined in eligibility criteria; (5) Study defined polyvictimization as experiencing at least two or more types of victimization.

### ***Exclusion Criteria***

Studies were filtered out based on the following exclusion criteria: (1) Unable to find English version of document; (2) Study only assessed polyvictimization prevalence and no related factors; (3) Study failed to create polyvictimization measure and looked at varying types separately; (4) Sample included participants who were under 18 years of age; (5) Polyvictimization measure included traumatic events; (6) Polyvictimization measure combined repeat (i.e., same type) and polyvictimization; (7) Study used lifetime, retrospective childhood,

or gives no recall period for polyvictimization measure, which does not allow researcher to determine whether victimization experiences happened in adulthood or childhood; (8) Study focused on family polyvictimization, which could include those under the age of 18 and victimization experiences before the age of 18.

### **Information Sources and Search Strategy**

Relevant studies were identified using two main search strategies. First, seven databases were searched to identify peer-reviewed published works: Criminal Justice Abstracts, Criminal Justice Database, APA PsycInfo, ERIC, Academic Search Complete, Violence and Abuse Abstracts, and PubMed. The Criminal Justice databases were chosen based on the researcher's field of study and due to the high volume of victimization researchers who publish in criminal justice and victimology journals. Additionally, Finkelhor and colleagues' (2005; 2007) seminal works were published in journals oriented toward the discipline of Psychology or Public Health, and researchers often approach polyvictimization from health perspectives, such as dose-response (see Dierkhising et al., 2019 for example). Thus, APA PsycInfo, Violence and Abuse Abstracts, and PubMed were included. ERIC and Academic Search Complete were included due to these databases being largely interdisciplinary.

Second, to minimize possible publication bias, ProQuest Dissertations and Theses database and Google Scholar were used to find grey literature. Grey literature is documents that are not published in traditional peer-reviewed journals – theses, reports, conference presentations. In all nine databases/search engines, four main search strings were utilized: (1) polyvictimization\*; (2) polyvictimization AND outcomes\*<sup>1</sup>; (3) multiple victimization AND risk

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<sup>1</sup> Asterisks indicate that the search string is including results for synonyms of the word it is placed after. The capitalized “AND” indicates that both terms need to be present when returning results. The capitalized “NOT” tells

factors\* NOT child NOT adolescent; (4) polyvictimization\* AND (Correlates OR Consequences). Polyvictimization is sometimes referred to as multiple victimizations, and as such a search term was included to gather studies using this semantic idiosyncrasy. Due to the wide range of possible correlates and consequences, the broad terms of outcomes, risk factors, correlates, and consequences were used. These search terms provide less chance of missing eligible studies. For every search except Google Scholar<sup>2</sup>, a limiter of “in title or abstract” was included, and for all searches that allowed it, a limiter of asking for results in English was applied. PubMed and APA PsychInfo allow researchers to select age filters; thus, searches were conducted for these two databases using filters to only include studies that used adult (i.e., 18 and older) samples. In addition to these searches, one other study was selected for inclusion due to being part of this dissertation and a work under review by the author.

### **Study Selection and Data Collection**

A two-stage process was used to screen studies after gathering them into one place, assisted by Zotero (i.e., free citation management software) and Abstrackr (i.e., free title and abstract screening software). A full breakdown of the numerical data for searches, screening, and reasons for exclusion can be found in the PRISMA diagram (Figure 1) below. To ensure proper recording of results, folders named for each database were created in Zotero. After each search string was used, articles were downloaded into their corresponding folder. Zotero then creates a duplicate folder of all studies that it recognizes as duplicates. After all identified duplicates were

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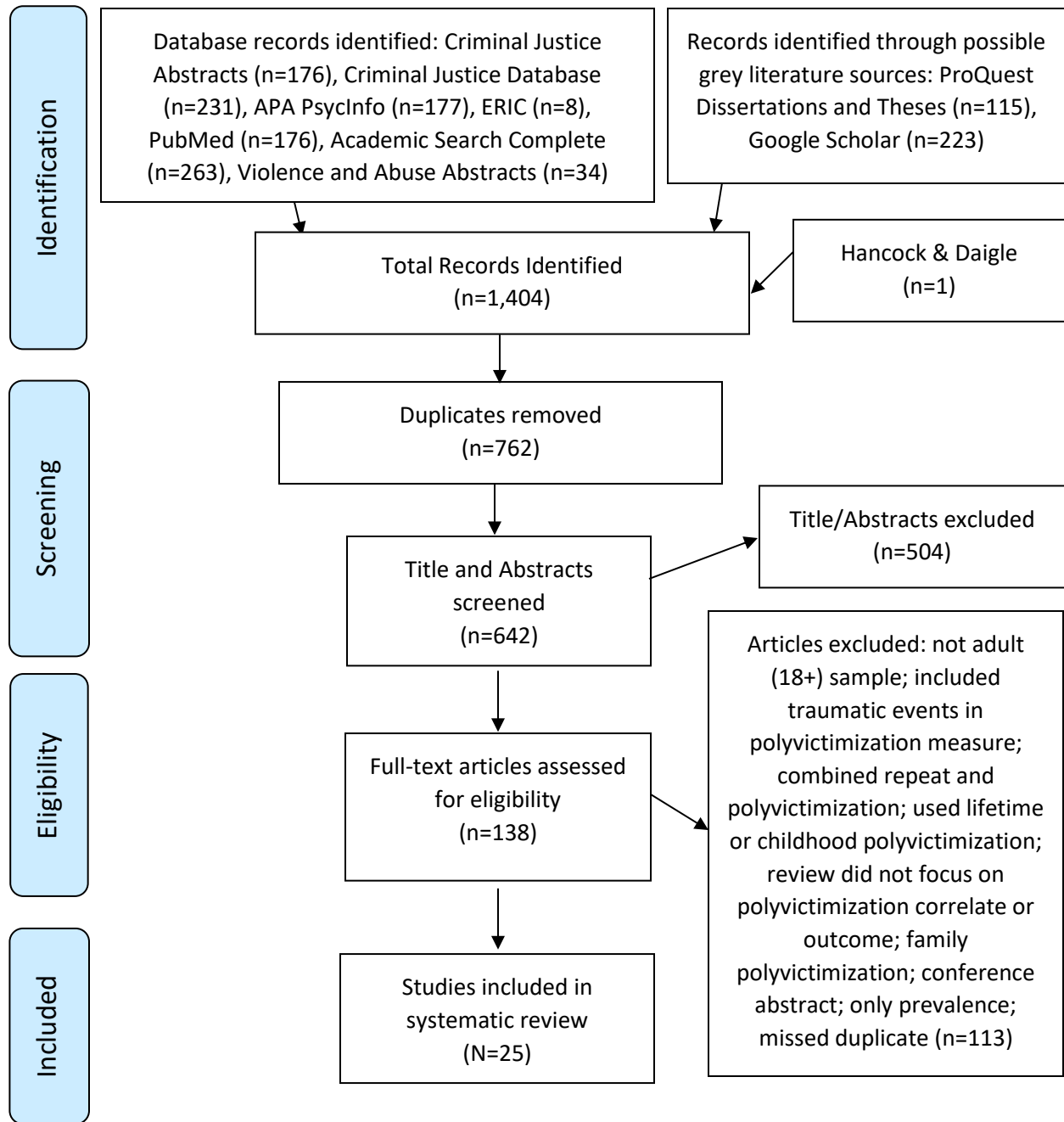
the search engines to filter out studies with the terms preceding it. The capitalized “OR” term means that the search results can include either word before or after the “OR,” and by putting it in parentheses the search engine knows to include results for polyvictimization AND a correlate or consequence, rather than including polyvictimization or a correlate or a consequence.

<sup>2</sup> Google Scholar is limited in its ability to process complex searches and as such, produces mass search results. Google Scholar does not have the option to limit searching for terms in abstract, so these searches were limited to terms being used in the title.

removed, the library containing all of the remaining search results for this review were exported and uploaded into Abstrackr.

The two-stage screening process then began in Abstrackr. This software takes the imported citations and links them to each title and abstract. If an abstract did not appear with a title, a quick manual search and abstract screen was performed using the appropriate database. Abstrackr allows researchers to screen studies by providing three buttons below each abstract (i.e., relevant/accept, maybe, not relevant/reject). Abstrackr then keeps track of what you label studies using those three options. The first stage of this process included screening the titles and abstracts using four basic criteria/questions. (1) Does the title indicate that polyvictimization was examined? (2) Does the abstract indicate that a form of polyvictimization was examined? (3) Does the abstract indicate examination of a correlate or consequences of polyvictimization? (4) Does the abstract indicate polyvictimization happened in adulthood (18 or older)? For example, if a study had a title that did not have the term polyvictimization or related word, the abstract would then be assessed to see whether it included polyvictimization. If it did not, the study would be marked as not relevant. Studies that did not indicate in the abstract whether they included an adult sample or measures of adulthood polyvictimization were searched and methods section briefly examined to make an inclusion/exclusion decision.

**Figure 1. PRISMA Diagram**



The second stage consisted of full-text screening for the studies identified as eligible after excluding ineligible studies during the title and abstract screening. After finishing the title/abstract screening, the citations with corresponding label decisions were exported from Abstrackr into an Excel file. Within the Excel file, duplicates not identified by Zotero were removed. This deletion resulted in 138 eligible studies for full-text screening. During full-text screening each study was assessed based on the inclusion and exclusion criteria, and descriptions noting reason for exclusion were placed next to studies that were deemed ineligible. This screening resulted in 25 fully eligible studies. Information was then recorded from these studies into Tables 1.1 and 1.2. These tables include the study's ID (i.e., author, date), country the data were from, who the participants were, how many participants there were, how the sample was drawn, how polyvictimization was measured, the key correlate or consequence examined, and the study results. This table allowed me to systematically collect results and details about each study, group them, and qualitatively analyze them based on their similarities and differences.

### **Risk of Bias**

To increase reliability of findings and minimize publication bias, both published and unpublished works were included. Additionally, only studies examining polyvictimization as at least two or more types and in adulthood were analyzed. Despite doing this, these studies are still highly heterogeneous and statistical analysis are not performed. Results are reviewed, presented, and discussed narratively based on the main topics presented in Table 1.1.

## **Results**

A brief set of qualitative data for each study can be found in Table 1.1 and Table 1.2 below. Importantly, all studies employ measures of adulthood polyvictimization within adult samples. Many of these samples are specific subsets of the population and cannot be generalized more broadly. Table 1.1 presents the studies examining polyvictimization correlates, and Table 1.2 presents the studies examining consequences of polyvictimization. Each table is organized alphabetically by author (i.e., Study ID). A brief discussion of prevalence and study characteristics are included prior to examination of correlates and consequences. Since the main objective and one of the research questions of this review was to examine the correlates and consequences of polyvictimization, narrative in-text results are categorized and presented based upon this designation (i.e., whether the key variables were analyzed as a correlate or consequence of polyvictimization).

### **Prevalence**

Data were collected across studies to explore variations in prevalence estimates. Prevalence estimates are presented in Tables 1.1 and 1.2. Almost all studies examining correlates of polyvictimization (n=12), and almost all studies examining consequences of polyvictimization (n=10) reported at least some form of a prevalence estimate for polyvictimization. Across all studies, estimates widely varied. For example, in Williams et al. (2020) national sample of older adults, only 1.7% experienced more than one type of victimization, but Chokkanathan (2021) found that approximately 83% of their older adult sample experienced polyvictimization. Similar variations in prevalence can also be seen among other subsamples. Specifically, researchers have found polyvictimization prevalence estimates that were as low as about 4% among a general

sample of college students (Hancock & Daigle, 2021) and as high as 87% among LGBTQ college students (Dekeseredy et al., 2021). The wide variation in prevalence found between these two samples may be attributed to members of the LGBTQ+ community often experiencing greater estimates of victimization than non-LGBTQ+ individuals. Not surprisingly, polyvictimization prevalence estimates were a bit higher for subsamples that appeared to be involved with the justice system or services. For example, Caravaca-Sánchez and Wolff (2021) found that approximately 28% of male inmates experienced polyvictimization, and as noted, 100% of labor trafficked individuals experienced more than one type of victimization (De Vries & Farrell, 2018). Some studies were unable to fit within the above subgroups and are discussed as an “other” sample category. In a nationally representative sample of women in Peru, approximately 10% indicated experiencing polyvictimization (Weitzman, 2018). Surprisingly, Srivastava et al. (2021) found a lower estimate among their community sample of transgender women and men who have sex with men (4.7% and 5.7%, respectively).

### ***Study Characteristics of Correlates***

Across all studies viewing correlates of polyvictimization, there were approximately 30,778 cases or individuals included for analysis. Sample sizes ranged from 24 to 8,195. Most of the correlate studies were conducted in the United States (n=10), but other countries were also included: Spain (n=1), India (n=1), and Peru (n=1). All data for the correlate studies were cross-sectional (n=13), which limits the ability to establish time order when discussing the relationship between correlates of polyvictimization. Participants included older adults, male inmates, college students, labor trafficked persons, men recently released from prison residing in halfway houses, and women in the general population. Many of the studies examining correlates of

polyvictimization used college student samples (n=6). Studies generally reported age ranges. If an age range was not available, average age was reported. If neither age range nor an average age was reported, then a note was made indicating this in Table 1.1 Among all correlate studies, participants ages ranged from 18-77.

**Table 1.1 Studies Examining Correlates of Polyvictimization**

Study ID	Country	Participants	N	Sampling Method	Polyvictimization	Key Correlate	Results/Prevalence
Caravaca-Sánchez & Wolff (2021)	Spain	Male inmates  (18+ and average age 36)	2,484	Randomly selected from inmate population of 8 prisons: structured questionnaire by researcher	DV: Emotional, physical, sexual past six months  Count (no, 1, 2, 3)	IV: Community victimization in adulthood and childhood, prior prison, disciplinary infraction, work in prison	Key correlates were all associated with increased poly risk  27.8% experienced two or three types
Chokkanathan (2021)	India	Older adults in rural India  (61+)	187	Probability proportionate to size sampling: 1 <sup>st</sup> stage (30 clusters in 17 villages were selected) and 2 <sup>nd</sup> stage (aged 61 years+ randomly selected) - interview survey	DV: Physical, psychological, financial, neglect in year before interview  Latent class analysis (high frequency, high neglect, high psychological)	IV: Aggression, family conflict	Poly associated with increased aggression and family conflict  83.4% experienced more than one type
Daigle et al. (2021)	United States	College students from NCHA Fall 2020  (18-98)	13,373	Schools self-select into study and use random sampling techniques or entire student population; paper and web-based survey	DV & IV: Violent, sexual, stalking, IPV within past 12 months  Count (0-4)	IV: Had covid, work for pay, binge drinking, marijuana use, illicit drug use, relationship status, race, age, birth sex, gender identity	Poly increased odds of having covid-19 impact finances, stress, and access to counseling; Having Covid-19 increased odds of experiencing poly  6.83% experienced two or more types
DeKeseredy et al. (2019)	United States	College students at large south Atlantic university  (Average 22)	3,266	Undergrad, grad, and professional students invited by email to take survey	DV: Stalking, sexual harassment, IPV, sexual assault since you started at college  Count – unclear what poly defined	IV: Negative peer support measured two ways: pro-abuse support and attachment to abusive peers	Receiving NPS increases probability of multiple forms of victimization/  Stalking poly: 45%   Sex harassment poly: 61%   IPV poly: 18%   Sexual assault poly: 34%

DeKeseredy et al. (2021)	United States	LGBTQ college students at large south Atlantic university  (Average 22)	487	Undergrad, grad, and professional students invited by email to take survey	DV: Stalking, sexual harassment, IPV, sexual assault since enrolled at college  Dichotomous (0: none/one & 1: two or more types)	IV: Negative peer support measured two ways: pro-abuse support and attachment to abusive peers	Both NPS measures related to increased probability of polyvictimization <hr/> Stalking poly: 82%   sexual harassment poly: 87%   IPV poly: 83%
De Vries & Farrell (2018)	United States	Labor-trafficked persons who received services after labor trafficking  (Adults - numerical age not provided)	115	Stratified victim services by region; randomly selected records of labor-trafficked persons from seven providers: (if lower than 30 persons – all included)	DV: Deprivation/disorientation; threats/use of violence; demeaning and demoralizing tactics; diminished resistance; intimidation and control; deception concerning consequences; and use/ threatened use of law during trafficking event  Count (2-7)	IV: Prior victimization	Prior victimization more generally before trafficking and victimization during recruitment and transportation further increased the risk of experiencing a higher count of polyvictimization <hr/> All of sample (100%) experienced two or more types
Listwan et al. (2014)	United States	Males recently released from prison residing in halfway houses  (18-77)	1,613	Contacted staff at 25 halfway houses for list of recently released in state; conducted interviews for 60-90 minutes	DV: Witnessed and completed property loss (thefts), physical assaults, emotional abuse, and sexual assaults last 12 months  Count (0-8)	IV: Prison environment, perceptions of c.o.'s, race, age, marital, small stature, gang, mental illness, protective custody, prior violent conviction, months incarcerated, religious, treatment, social support	Perception of prison and correctional officers as hostile, having a mental illness, attending religious services increased risk but being White and older decreased risk <hr/> 95.37% experienced two or more types
Mennicke et al. (2021)	United States	Students who were victims of	24	Qualtrics online survey to a stratified	Bullying, sexual harassment,	Age, gender, race, sexual orientation,	Those who disclosed to formal resources

		sexual assault at large public university in the Southeast  (Average 19)		random sample of undergrad and graduate in-person students	physical and psychological relationship abuse, reproductive coercion in sexual relationships, stalking past year  Count (1-7)	year in school, sexual assault, disclosure type, disclosure barriers, consequences, rape myth endorsement, social affiliations	had high rates of polyvictimization  Average amount of types was 3.9 (prevalence not reported)
Snyder et al. (2021)	United States	College women who experienced interpersonal victimization from NCHA Fall 2011 and Fall 2012  (Average 20)	4,395	Schools self-select into study and use random sampling techniques or entire student population; paper and web-based survey	DV: Sexual touch without consent; attempted rape (vaginal, anal, or oral); a completed rape (vaginal, anal, or oral), physical assault, stalking past 12 months  Dichotomous (0: single; 1: two or more types)	IV: Binge drinking, marijuana use, illicit drug use, sex partners, Greek membership, relationship status, eating disorder, overweight BMI, physical disability, learning disability, mental disability, sexual orientation	Being younger, first semester student, eating disorder, mental disability, bisexuality, binge drinking, greater number of sex partners, sorority member, and being single increased poly risk relative to single type risk  32% of victims experienced two or more types
Swan et al. (2021)	United States	College students with sexual partner in last year at large, public southeast university  (18-50)	431	Stratified random sampling: email survey	DV: Sexual assault, sexual harassment, physical partner abuse, stalking, psychological partner abuse, bullying in past 12 months  Dichotomous (0: none/1; 1: two or more types)	IV: Reproductive coercion	Reproductive coercion most associated with stalking, sexual harassment, sexual assault, followed by polyvictimization, bullying, and psychological partner abuse  39.91% experienced two or more types
Voith et al. (2020)	United States	College men from a large, urban, midwestern university	423	Convenience online survey: psychology course permitting extra credit for participation	DV: Physical, sexual-SES, sexual CTS, or psychological past year	IV: Childhood victimization, age, gender, social desirability	Physical abuse, not sexual abuse predicted polyvictimization in adulthood

		(18-61)			Dichotomous (0: none/1; 1: two +)		43.5% experienced two or more types
Weitzman (2018)	Peru	Women in community (23-33)	Young (8,195) Old (6,645)	Nationally representative, stratified random sample: collected through Demographic and Health Surveys	DV: Recent psychological, physical, and sexual IPV year before survey  Dichotomous (0: none/1; 1: two or more types)	IV: Level of school completion	For both samples, increasing a woman's schooling by 1 year decreased probability of recent poly by 10% <hr/> 10% experienced two or more forms of IPV
Williams et al. (2020)	United States	Older adults (Average 71)	2,300	National Elder Mistreatment Survey: stratified, random-digit-dialing sampling computer assisted phone interview	DV: Emotional, physical, sexual abuse, neglect, financial exploitation in past year  (Non-victim, single type victim, polyvictim two or more types)	IV: Health status, prior traumatic event, social support, social service utilization, daily living assistance, age, gender, education, ethnicity, race	Greater problems accomplishing daily living activities, lower social support, past traumatic events, poorer health, racial minority all predictors of polyvictimization <hr/> 1.7% experienced more than one type

## **Correlates of Polyvictimization**

After recording the qualitative data and assessing the results, thirteen studies were identified as examining a correlate of polyvictimization (i.e., conducted study with polyvictimization as dependent variable) (Caravaca-Sánchez & Wolff, 2021; Chokkanathan 20121; Daigle et al., 2021; DeKeseredy et al., 2019; DeKeseredy et al., 2021; De Vries & Farrell, 2018; Listwan et al., 2014; Mennicke et al., 2021; Snyder et al., 2021; Swan et al., 2021; Voith et al., 2020; Weitzman, 2018; Williams et al., 2020). Correlates were identified across five major domains: physical health, mental health, relational/behavioral, prior victimization, and life experiences. All studies revealed at least one significant relationship between the constructs assessed and polyvictimization. Many studies examined varying domains of correlates, and as such, some studies are discussed below multiple times.

Within the physical health domain, three studies included correlates related to physical health. Specifically, Daigle et al. (2021) explored the relationship between varying types of victimization, polyvictimization, and Covid-19. They found that Covid-19 was linked to increased odds of experiencing polyvictimization (Daigle et al., 2021). Williams and colleagues (2020) examined risk factors for and the prevalence of polyvictimization among older adults using data from the National Elder Mistreatment Study. In their final analyses, they found that having problems accomplishing daily living activities (e.g., experiencing greater problems accomplishing activities of daily living) was a significant risk factor for experiencing polyvictimization (Williams et al., 2020). In addition to this research, Snyder et al. (2021) used data from the National College Health Assessment to explore a host of polyvictimization risk factors related to lifestyle-exposure and target congruence perspectives among female college students who had experienced victimization. Of the risk factors they examined, having an eating

disorder (i.e., anorexia, bulimia) was significantly associated with polyvictimization (Snyder et al., 2021).

The second domain of correlates of polyvictimization is mental health. As an example, Listwan et al. (2014) used a sample of men recently released from prison to examine polyvictimization risk in prison. They found that having a mental illness was related to increased risk of experiencing a greater number of types of victimization. One study included constructs loosely related to mental health. Specifically, Snyder and colleagues (2021) study detailed above examined mental disability (e.g., bipolar disorder, obsessive compulsive disorder, schizophrenia, other psychiatric conditions) as a risk factor for polyvictimization and found that having a mental disability was a significant risk factor for experiencing polyvictimization among female college students.

In addition to health-related correlates, several studies also identified correlates that could be broadly termed relational/behavioral factors. Relational and behavioral factors are similar in that both involve some form of action (e.g., interactions with others; binge drinking). As an example of a relational item, Williams et al. (2020) found having low social support (e.g., emotional, available, advice) increased risk for polyvictimization. Dekeseredy et al. (2019), using a subsample of college females from the Campus Quality of Life Survey, found that having attachments to abusive friends and friends who are supportive of abusive behaviors increased the likelihood of experiencing multiple forms of abuse. Similarly, Dekeseredy and colleagues (2021) examined these variables among LGBTQ+ students and found that the negative peer support variables also predicted experiencing polyvictimization. Chokkanathan (2021) found another relational measure associated with polyvictimization. Specifically, they found that being aggressive with others and experiencing family conflicts were associated with increased risk for

polyvictimization. Other factors may be viewed as more behavioral. For example, Snyder and colleagues (2021) found that binge drinking and having an increased number of sexual partners were significant in predicting polyvictimization among college students. Mennicke and colleagues (2021) also examined a sample of college students and found that those who indicated formal victimization disclosure to campus services were often polyvictims.

Another domain for correlates was also identified – prior victimization experiences. Caravaca-Sánchez and Wolff (2021) used a sample of incarcerated males to examine risk factors for polyvictimization. They found a significant and strong relationship between experiencing adulthood and childhood community victimization and experiencing polyvictimization (Caravaca-Sánchez and Wolff, 2021). Similar to their findings, Swan and colleagues (2021) found that reproductive coercion (e.g., refusing birth control methods; pressuring to have baby) was associated with increased likelihood of experiencing polyvictimization among their college student sample. In examining another form of prior victimization, Voith et al. (2021) found that childhood physical abuse rather than sexual abuse significantly predicted experiencing polyvictimization in adulthood. Similarly, De Vries and Farrell (2018) examined correlates linked to experiences with labor trafficking, including polyvictimization, among a sample of previously labor trafficked individuals. They found that experiencing prior victimization before and in the initial stages of labor trafficking increased the risk of experiencing a higher count of polyvictimization (De Vries & Farrell, 2018).

While prior victimization experiences appear to be the domain with the largest number of studies, there are other life experiences that may affect experiencing polyvictimization. For example, Caravaca-Sánchez and Wolff (2021) found that having a prior prison sentence, receiving disciplinary infractions, and working in the prison were associated with increased risk

for polyvictimization. Similarly, among men recently released from prison, Listwan et al. (2014) found that perceiving the prison and correctional officers as hostile and attending religious services were related to experiencing a greater number of victimization types. Weitzman (2018) used a nationally representative sample of women in Peru to examine education and intimate partner violence. Their findings showed that increasing schooling (having a greater number of years completed) decreased the probability of experiencing recent polyvictimization.

### *Study Characteristics of Consequences*

Table 1.2 provides greater detail about study characteristics for polyvictimization consequences. The majority of consequence studies were conducted in the United States (n=9), but other countries were also included: Spain (n=1), India (n=1), and Switzerland (n=1). Across all studies examining the consequences of polyvictimization, there were approximately 100,602 cases or individuals included for analysis. Sample sizes ranged from 218 to 61,986. Participants included: college students, older adults, women with history of drug use, transgender women, men who have sex with men, adults from a wave of a general population longitudinal study, and military cadets and midshipmen. A closer look at these varying subsamples is provided below. The majority of consequence studies used college student samples (n=8). Most studies reported age ranges. If an age range was not available, average age was reported. Additionally, some studies indicated neither as noted in Table 1.2. For studies examining polyvictimization consequences, participants ages ranged from 18-94.

**Table 1.2 Studies Examining Consequences of Polyvictimization**

Study ID	Country	Participants	N	Sampling Method	Polyvictimization	Key Consequence	Results/Prevalence
Aizpurua et al. (2021)	Spain	College students from two public colleges in southeastern Spain  (18-63)	828	Convenience sample: online survey sent out via email	IV: Insults, online slander, theft, threats, physical abuse, sexual harassment, sexual abuse in past 12 months  (Non-victim, single type, polyvictim: two or more types)	DV: Depression, anxiety, stress in past week	Polyvictims had greater levels of depression, anxiety, and stress than non and single type victims  34.4% experienced two or more types
Ataiants et al. (2020)	United States	Women with history of drug use  (18+ & average 38)	218	Recruited at Philadelphia harm reduction site for 1 year: interviewer administered questionnaire	IV: Sexual violence, physical assault, verbal aggression/ threats, and coercive control in adulthood  Count (0-16) and categorical: high: 9-16; low:1-8; none	DV: Lifetime number of drug overdoses	Expected overdose rate 2.01 times higher for women in higher polyvictim category compared to none  41.7% experienced 9-16 specific types
Banyard et al. (2020)	United States	Undergraduate students  (18-24)	6,482	Eight universities in New England: convenience sample	IV: IPV, stalking, unwanted sexual contact, unwanted sexual intercourse during academic year  Count (0-4)	DV: Academic Efficacy, Collegiate Stress, Institutional Commitment, Scholastic Conscientiousness	Greater number of victimization types = greater negative outcomes  17.7% experienced two or more types
Burnes et al. (2018)	United State	Older adults experiencing elder abuse in past year  (60-94)	304	National Elder Mistreatment Study; stratified, random-digit-dialing sampling computer assist phone interview	IV: Emotional, physical, sexual abuse past year  Dichotomous (0: none/1; 1: two or more types)	DV: Help-seeking (reporting elder abuse to police)	Higher help-seeking among poly elder abuse victims  11.2% experienced more than one type

Burnett et al. (2016)	United States	Substantiated elder abuse cases in Texas  (Average 77)	1,670	Cases extracted from Texas adult protective services	IV: Caregiver neglect, physical abuse, emotional abuse, financial exploitation  Dichotomous (0: none/1; 1: two or more types)	DV: Mortality	Males polyvictims had lower mortality compared to caregiver neglect. Female polyvictims had similar mortality to caregiver neglect <hr/> 31% experienced two or more types
Eisner et al. (2021)	Zurich, Switzerland and	Adults in Zurich Project wave where they were 20 years old  (Age 20)	1,180	Zurich Project on Social Development: 56 primary schools randomly selected using a stratified sample: survey in computer lab	IV: Peer victim, violent victim, physical or sexual dating victimization in past 12 months  Cumulative index; only notes multiple forms no specific number	DV: Violent ideations	Polyvictimization significantly contributed to an increase in violent ideations <hr/> Prevalence not reported
Hancock & Daigle (2021)	United States	College students from NCHA Spring 2019  (Average 22)	61,986	Schools self-select into study and use random sampling techniques or entire student population: paper and web-based survey	IV: Sexual, stalking, violent in past 12 months Dichotomous (0: none/1; 1: two +) and count (0-3)	DV: GPA, mental health-related, physical health-related, and substance use-related academic performance issues	Polyvictims' GPAs lower than non-polyvictims. Polyvictims have higher odds of having academic performance suffer; Three types = worse outcomes <hr/> Approximately 4% experienced two or more types
Ross et al. (2019)	United States	Undergrads from midsized, Midwestern university  (Average 20)	885	Recruited for online survey via subject pool for introductory psychology	IV: Sexting coercion, sexual coercion, IPA past 12 months or most recent relationship  Likert scale frequency scores	DV: Depression, anxiety, attachment dysfunction, sexual problems	Women who experienced poly (3 types) reported more anxiety, depression sexual problems, more avoidant attachment. Male polyvictims reported

					presented results as combination of above types		more sexual problems and avoidant attachment than single IPA. <hr/> Prevalence not reported
Sabina & Straus (2008)	United States	College students who were in relationship that lasted at least a month in past year  (Average 21)	4,533	International Dating Violence Study: 19 colleges included and professors collected survey data in courses (CJ, psych, soc.)	IV: Revised CTS: physical assault, psychological aggression, sexual coercion in past year  Total and severe groups based on severe violence items being those that are more serious/can result in injury.	DV: Posttraumatic stress symptoms (PTS), depressive symptoms	Polyvictim almost strongest predictor of PTS for all analyses. Poly significantly predicted depressive for women <hr/> 54% of victims experienced two or more types
Sargent et al. 2016	United States	First year students at Southwestern, private college  (18-28)	341	Convenience survey of first year wellness class	IV: Cyber victimization + psychological IPV since starting college  Frequency summary scores & combined types	DV: Depression, antisocial behavior	Experiencing both victimization types increased symptoms of depression and antisocial behavior <hr/> 37% experience both types
Snyder et al. (2012)	United States	Male and female cadets and midshipmen (i.e., college students)  (Age not reported)	5,220	Service Academy 2005 Sexual Harassment and Assault Survey: three army, naval, air force academies: all female cadets included /males by stratification and random	IV: Unwanted sexual attention, sexual harassment, unwanted sexual contact, sexual coercion, rape in past year  (Nonvictim, single type, two or more)	DV: Morality, intolerance for sexual victimization	Those who reported experiencing poly more likely to perceive leadership as less moral and tolerant of sexual victimization than single type <hr/> 45% females and 12% of males experienced two or more types

Srivastava et al. (2021)	India	Transgender women (18-73)	1,366	Cross-sectional epidemiological study 3 states: multistage stratified, probability proportionate, systematic random sample; tablet survey	IV: Physical, sexual, verbal, and property last six months  Count (0-4)	DV: Depressive symptoms	Trans women and MSM: one additional victimization experience associated with higher odds of depressive <hr/> 4.7% trans women and 5.7% MSM experienced two or more types
		Men who have sex with men (18-62)	2,182				

## **Consequences of Polyvictimization**

There was a total of 12 studies that examined polyvictimization consequences (i.e., conducted study with polyvictimization as independent variable) (Aizpurua et al., 2021; Ataiants et al., 2020; Banyard et al., 2020; Burnett, 2016; Burnes et al., 2018; Daigle et al., 2021; Eisner, 2021; Hancock & Daigle, 2021; Ross et al., 2019; Sabina & Straus, 2008; Sargent et al., 2016; Snyder et al., 2012; Srivastava et al., 2021). Studies provided a unique range of sample characteristics, sampling methods, polyvictimization measurements, and a variety of consequences linked to polyvictimization. Consequences were identified and grouped by four major domains – physical health, mental health, behavioral/attitudinal measures, and academic performance.

Four studies examined a polyvictimization consequence related to physical health. Uniquely, Daigle et al. (2021) examined polyvictimization as both a correlate and consequence. They found polyvictimization was associated with increased odds of experiencing Covid-19-related stress, Covid-19-related financial problems, and viewing psychological or mental health services as being difficult to access during the pandemic (Daigle et al., 2021). Specifically, Ross et al. (2019) examined sexting coercion and intimate partner polyvictimization among an undergraduate sample of college students. Their findings showed that women and men who experienced polyvictimization reported more sexual problems (e.g., sexual overactivity) than single IPA alone. Another study examined a serious drug related physical health measure - drug overdose. Ataiants (2020) examined polyvictimization among women with a history of drug use and found that the expected overdose rate was 2.01 times higher for women in the higher polyvictimization class (e.g., 9-16 types of victimization) compared to those who experienced no victimizations. Burnett et al. (2016) used case files from adult protective services to examine

elder abuse and mortality rates. They found that males experiencing polyvictimization (i.e., caregiver neglect, physical abuse, emotional abuse, financial exploitation) had significantly lower mortality rates compared to caregiver neglect alone. Females experiencing polyvictimization had similar mortality rates to that of caregiver neglect. Surprisingly, those with polyvictimization experiences showed the third highest survival rate among elder abuse victim cases (Burnett, 2016).

Much more research has been conducted examining the mental health effects of polyvictimization (Aizpurua et al., 2021; Ross et al., 2019; Sabina & Straus, 2008; Sargent et al., 2016; Srivastava et al., 2021). For example, Ross and colleagues (2019) found that, among women, polyvictimization predicted having anxiety and greater avoidant attachment, and among men, polyvictimization was associated with increased avoidant attachment. Similarly, Aizpurua et al. (2021) examined polyvictimization and mental distress among university students in Spain. Their findings also showed that polyvictims had greater levels of depression, anxiety, and stress than non-victims and single-type victims (Aizpurua et al., 2021). Three other studies also examined depression or depressive symptoms as a consequence of polyvictimization. Specifically, Sargent et al. (2016) found that experiencing both cyber victimization and psychological IPV increased symptoms of depression among first-year college students. Similarly, Sabina and Straus (2008) explored polyvictimization among dating partners as it relates to mental health among college students. They found that for both men and women, polyvictimization was one of the strongest predictors of post-traumatic stress symptoms, but polyvictimization only significantly predicted depressive symptoms among women and not men (Sabina & Straus, 2008). Other research has identified these symptoms in subgroups within the general populations. For example, Srivastava et al. (2021) explored polyvictimization, sex work,

and depressive symptoms among transgender women and men who have sex with men (MSM). They found that for trans women and MSM, experiencing one additional victimization experience was associated with higher odds of having depressive symptoms (Srivastava et al., 2021).

Factors can also be grouped within a broad third domain – behavioral and attitudinal factors. As an example of behavioral consequences, Burnes et al. (2018) used data from the National Elder Mistreatment Study to examine help-seeking behaviors among victims of abuse, including polyvictims. Their findings revealed that the odds of help-seeking (e.g., formal police reporting) was highest among polyvictims relative to any single type of victimization (Burnes et al., 2018). As another behavioral factor, Sargent and colleagues (2016) found that experiencing a combination of cyber victimization and psychological IPV increased symptoms of antisocial behaviors among college freshmen.

Several studies explored attitudinal factors as potential consequences of polyvictimization. For example, Snyder et al. (2012) explored victimization, including polyvictimization, and its relationship to attitudinal perceptions of military leadership among male and female cadets and midshipmen (i.e., college students attending military academies). Their findings showed that those who reported experiencing polyvictimization were more likely to view academy leadership as being less moral and more tolerant of victimization than those who experienced a single type of victimization (Snyder et al., 2012). Others have explored polyvictimization's relationship to aggressive attitudes. Specifically, Eisner et al. (2021) used a wave of data from a longitudinal data set to explore polyvictimization's relationship to violent ideations among 20-year-old adults. They found that polyvictimization significantly contributed to an increase in violent ideations (Eisner et al., 2021).

Finally, the fourth domain identified included two studies examining academic performance as it relates to polyvictimization. Specifically, Banyard and colleagues (2020) examined the impact of polyvictimization on academic performance (i.e., academic efficacy, collegiate stress, institutional commitment, scholastic conscientiousness) among college students. They discovered that as the number of types of victimization increases, so too, do the number of negative impacts to academic performance (Banyard et al., 2020). Similarly, Hancock and Daigle (2021) explored the relationship between polyvictimization and academic performance (e.g., GPA, mental health, physical health, and substance use-related academic performance) using national level college student data. Findings showed that polyvictims' GPAs were lower than non-polyvictims, and polyvictims have higher odds of having their academic performance impacted by mental health, physical health, and substance use issues than non-polyvictims (Hancock & Daigle, 2021).

### **Sampling Procedures and Group Differences**

There was high heterogeneity across study sampling procedures in terms of specific methods used, but broadly, the majority of studies appeared to use some form of probability sampling method (n=14). The remaining 11 studies used non-probability sampling methods, with seven studies using online convenience surveys and four studies using a purposive method to schedule interviews or obtain data. All studies examining correlates and consequences were cross-sectional, which limits the ability to establish time order between experiencing polyvictimization and negative outcomes or risk factors and polyvictimization. Eisner (2021) used data from a longitudinal data set, but only used one wave of the data. Table 1.1 and Table

1.2 provide greater detail regarding specific sampling techniques for each study, but sampling procedures as they relate to differences across groups are discussed below.

As can be seen by examining the participant column in Table 1.1 and Table 1.2, there are three major subgroups for those who are included in these studies: (1) college students (n=13), (2) older adults (n=4), (3) system/services involved individuals (n=5), with three others (n=3) that did not necessarily fit (i.e., general population health survey of women in Peru; Zurich Project longitudinal school sample; general population sample of transgender women and men who have sex with men) within the other categories. Among studies examining college students, samples tend to be younger (e.g., most frequent average age 22) and be drawn using non-probability, convenience sampling methods. By contrast, the older adult subsamples are clearly older in age, but these studies also all used probability sampling methods. Similarly, the system/services involved subgroup were drawn using random sampling methods (i.e., probability; n=2) and purposive sampling (i.e., non-probability; n=2) techniques, but they appear to have no real significant differences in age. Finally, the final three studies not categorized into a group also used probability sampling methods. Sampling procedure is important to consider because if the sample is not truly representative of the larger population, the generalizability of the study findings is limited. Specifically, the generalizability of the findings is dependent upon whether the researchers used a probability or non-probability sampling technique (Dillman et al., 2014). This distinction is important if researchers wish to generalize to the larger population of interest. In this way, most of the studies that examined college students (n=9) are less generalizable than some of the other subgroups because they did not use any probability sampling approaches in their design.

There were also slight differences in sampling procedures and prevalence estimates within subgroups. For example, the studies that examined those involved in services or the justice system all found significant relationships between polyvictimization and factors relevant to their specific experiences (e.g., expected overdose rate higher for polyvictims recruited from a harm reduction site (Ataiants et al., 2020)). The services/system involvement group also had very high estimates of polyvictimization. Specifically, 95% of Listwan et al.'s (2014) non-probability sample of males recently released from prison had experienced two or more types of victimization, and 100% of De Vries and Farrell's (2018) probability sample of labor trafficked individuals had experienced two or more types of victimization. These are the highest estimates for any study included in the review. The services/system involvement group also had large variation in sample sizes (i.e., 218; 115; 1,613; 2,484), but sample size was not tied to sampling procedure.

Additionally, differences were found between older adult and college student samples. Samples size varied in studies examining older adults (e.g., 187; 2,300; 304; 1,670), and among the college student samples - ranging from 24 students (Mennicke et al., 2021) to 61,986 students (Hancock & Daigle, 2021). It is interesting that college student samples tend to have the largest sample sizes, despite possibly having the lowest generalizability. Studies examining older adults tended to find that polyvictimization was related to forms of help-seeking (Burnes et al., 2018), death (Burnett et al., 2016), family conflict (Chokkanathan, 2021), and problems navigating daily living activities (Williams et al., 2021), but findings from the college student samples were focused more on factors related to academic performance (Banyard et al., 2020; Daigle & Hancock, 2021; Daigle et al., 2021), health (Aizpurua et al., 2021; Ross et al., 2019; Sabina & Straus, 2008; Sargent et al., 2016), social relationships (DeKeseredy et al., 2019, 2021), past

victimization (Swan et al., 2021; Voith et al., 2020) and other factors relevant to college life (Mennicke et al., 2021; Snyder et al., 2021). As can be seen by the listed correlates or consequences, studies tended to explore factors that were relevant to their sample choice. For example, studying academic performance is more relevant to college students as compared to general older adult samples. As such, it can be gleaned that sample type is related to inclusion of sample-specific relevant factors related to polyvictimization. Other similarities and differences in sample size and sampling methods were also identified. For example, studies in the older adult group were similar to the studies sampling college students due to using national-level, larger samples. Differences existed between the college student subsample and studies in the other category. Specifically, in contrast to the studies examining college students, the three studies included in the other category (Eisner et al., 2021; Srivastava et al., 2021; Weitzman, 2018) all used probability sampling methods, and thus, their findings are more generalizable than findings from the studies that used college student samples.

### **Polyvictimization Measurement**

Variations in polyvictimization measurement also existed across the studies. For example, there does appear to be some subtle differences in types of victimization used to create the polyvictimization measures for college students, older adults, and those with system/services involvement. Specifically, studies examining college students often included psychological and sexual victimization in combination with IPV. Of particular interest, the studies examining college students were the only ones that included measures of stalking. Three of the four studies examining older adult samples tailored their polyvictimization measures to include items such as neglect and financial abuse/exploitation, which are not used in other studies. Of the studies that

examined samples of justice system or service involved persons, only one study tailored its victimization items to the specific sample (e.g., examining deprivation/disorientation; threats or use of violence; demeaning and demoralizing tactics) (De Vries & Farrell, 2018).

There were also some specific variations in polyvictimization conceptualization regarding how many types constituted being a polyvictim. For example, the number of types experienced to be considered a polyvictim ranged from as few as two to as many as sixteen. However, most studies used two or more types experienced to define being a polyvictim. Additionally, recall periods included past six months, past year, and since enrolling in college. As an example of conceptualization, Caravaca-Sánchez and Wolff (2021) used three broad types of victimization (i.e., emotional, physical, sexual) within the past six months to create their polyvictimization measure, and they indicated polyvictims as being those who experienced two or more types. For a detailed account of each polyvictimization conceptualization and measurement strategy, see Tables 1.1 and 1.2.

Also of interest, some of the studies used various combinations of what some researchers may view as “traditional” types of victimization (e.g., stalking, violent victimization/assault, sexual victimization) to form their polyvictimization variable (Banyard et al., 2020; Daigle et al., 2021; DeKeseredy et al. 2019, 2021; Eisner, 2021; Hancock & Daigle, 2021; Snyder et al., 2021), but the remaining eighteen studies all used at least one form of either emotional abuse, psychological aggression, neglect, coercive control, or financial victimization within their polyvictimization measure (Aizpurua et al., 2021; Ataiants et al., 2020; Burnett, 2016; Burnes et al., 2018; Caravaca-Sánchez & Wolff, 2021; Chokkanathan 2017; De Vries & Farrell, 2018; Eisner, 2021; Listwan et al., 2014; Mennicke et al., 2021; Ross et al., 2019; Sabina & Straus, 2008; Sargent et al., 2016; Snyder et al., 2012; Srivastava et al., 2021; Swan et al., 2021; Voith,

2020; Weitzman, 2018; Williams et al., 2020). For the studies that used more “traditional” forms (e.g., stalking, violent victimization/assault, sexual victimization) of victimization there was wide variation in polyvictimization prevalence (i.e., a range of 4% to 87%), but there was similar variation in polyvictimization prevalence across studies that included psychological measures of victimization (i.e., 1.7% to 100%). These similarities highlight that including psychological measures of victimization to assess polyvictimization may increase (or drive) estimates to a certain degree. It should also be noted that the prevalence of 100% is in a sample of labor-trafficked individuals. Of interest, all of the studies that included some form of psychological victimization also found significant associations between polyvictimization and their studied correlate or consequence. For example, Aizpurua et al. (2021) included online slander and threats in their polyvictimization measure and found that polyvictims had greater levels of stress, anxiety, and depression than non-victims and single type victims.

There are also a number of other reasons that psychological abuse should be included in polyvictimization measures. First, if researchers were to not consider psychological abuse as a form of victimization, it is likely that prevalence estimates may be inaccurately presented, especially for populations who experience high psychological abuse from partners. For example, at the individual level, data from the National Intimate Partner and Sexual Violence Survey (NISVS) shows that about 36% of women and 34% of men experienced psychological aggression by an intimate partner during their lifetime, but only about 18% of women and 8% of men experienced contact sexual violence by an intimate partner in their lifetime (Smith et al., 2018). Second, past research, including meta-analyses, have consistently found that forms of psychological victimization are indeed significantly associated with poorer health (see Começanha et al., 2017; Norman et al., 2012). Thus, leaving psychological victimization items

out of polyvictimization measures may potentially attenuate relationships found between polyvictimization and outcome measures. Third, victimization does not need to be illegal to negatively affect someone's life. For example, Coker et al. (2002) found that higher psychological IPV scores were associated with greater odds of experiencing health problems (e.g., depressive symptoms; substance use; chronic disease; chronic mental illness; current poor health; injury) relative to physical IPV scores. Others have also supported the assertion that psychological victimization can lead to worse outcomes than some physical (i.e., illegal) forms of victimization. Specifically, among four groups of children (i.e., those who were physically abused, neglected, rejected with hostility, and who had psychologically unavailable mothers), those who had psychologically unavailable mothers actually had worse outcomes relative to the those experiencing other types including, physical abuse (Karr-Morse & Wiley, 2012). Fourth, the seminal works on polyvictimization (Finkelhor et al., 2005, 2007) also recognize psychological measures of violence as a form of victimization.

Variation in the conceptualization of polyvictimization also exists at the item level among these studies. For example, using the ACHA-NCHA II Spring administration data, Daigle and colleagues (2021) used violent victimization (i.e., 1 specific item), sexual victimization (i.e., four specific types), stalking (i.e., 1 specific item), and IPV (i.e., three specific types) to create their polyvictimization measure, which results in a count measure ranging from 0-4. Using the Fall administrations of these same data, Snyder and colleagues (2021) used a different approach and created a polyvictimization measure with single items for sexual touching without consent, attempted rape (vaginal, anal, or oral), completed rape (vaginal, anal, or oral), physical assault, and stalking. This measure had two categories: single-type victim and polyvictim (i.e., those who experienced more than two types of victimization) (Snyder et al., 2012). In another study, Snyder

et al. (2012) conceptualized polyvictimization as being unwanted sexual attention, sexual harassment, unwanted sexual contact, sexual coercion, or rape and was categorized as no victimization, single-type victim, and polyvictim.

Several of the other studies also take a similar approach to this focus on polyvictims being those who may experience different specific types of victimization (e.g., sexual harassment and unwanted sexual attention). Other researchers may view unwanted sexual attention and sexual harassment as the same type of victimization more broadly (i.e., both are forms of sexual victimization). This distinction is important because some researchers may label the former as being repeat victimization, which may make parsing out repeat from polyvictimization difficult. Depending on how it is measured, those experiencing repeat victimization may differ from those experiencing polyvictimization. For example, someone experiencing the same type of victimization multiple times may be exposed to different risk factors (e.g., mental disability, negative peer support) or even manifest different consequences (e.g., internalizing vs. externalizing disorders) compared to someone who experienced multiple types.

In addition to what types were used to create the polyvictimization measures, studies varied on the recall period used to measure polyvictimization and the number of types of victimization experienced needed to be considered polyvictimization. The vast majority of studies used recall periods worded as some version of within the past year or past six months to assess victimization, which is a strength of those studies due to past research indicating shorter recall periods can increase a victim's recall ability (Fisher & Cullen, 2000) and reduce measurement error (Daigle, Snyder, & Fisher, 2016). While there were similarities in recall periods, some studies varied in the amount of types that were needed to distinguish polyvictimization. Specifically, in some studies, seven broad types of victimization were used to

create a measure of polyvictimization (Aizpurua et al., 2021; De Vries & Farrell, 2018). Others used as few as two broad types to create their measure (Ross et al., 2019). As an example, Banyard and colleagues (2020) conceptualized polyvictimization as experiencing two or more types of the following four types of victimization (i.e., IPV, stalking, unwanted sexual contact, unwanted sexual intercourse) during the academic year. Additionally, number of types examined does not appear to influence correlates or consequences found. However, it is noteworthy that most studies, even if using a count measure, highlighted that they were defining polyvictimization as experiencing two or more types of victimization (n=20). Thus, there may be many pathways to polyvictimization, but most of these pathways do appear to define polyvictimization as experiencing two or more types.

In synthesizing the varying measurement techniques shown in Tables 1.1 and 1.2, it is evident that measurement strategy differences may influence study results. Specifically, as briefly discussed, some types of victimization included in polyvictimization measures were somewhat tailored to the study sample, which may have resulted in higher prevalence estimates (see De Vries & Farrell, 2018). Listwan et al. (2014) included ‘witnessed and completed property loss (thefts)’ in their polyvictimization measure for a sample of men recently released from prison and residing in halfway houses. The high prevalence rates may be driven by the large proportion of sample members experiencing witnessed and completed thefts. Thus, it may be that some studies that tailor victimization items produce higher prevalence estimates than those that do not.

When considering the studies holistically, number of types examined does not appear to drive prevalence or affect what correlates or consequences were found to be significant, but it is interesting that the two studies that used a past six-month recall period only found

polyvictimization prevalence estimates of 28% among male inmates (Caravaca-Sánchez & Wolff, 2021), 5% for transgender women, and 6% for men who have sex with men (Srivastava et al., 2021). These are two highly victimized populations but have lower prevalence estimates than some general college student samples, which can likely be attributed to the shorter (e.g., six-month) recall period. Thus, readers should take note of recall periods and be aware of how these differences in recall may impact prevalence estimates.

## **Discussion**

Polyvictimization – experiencing multiple types of victimization – is a phenomenon that has been gaining traction within the literature despite being under researched in terms of examinations of adult samples and adulthood victimization. To address this gap and add a potential resource to the literature, the current review provides an assessment of the literature examining polyvictimization and its correlates and consequences among adults. A diverse range (N=25) of study settings, samples, correlates, consequences, and polyvictimization conceptualizations were gathered and analyzed. Qualitative analyses of the included studies led to two main findings.

First, in every study included in this review, at least one correlate or consequence examined was significantly related to polyvictimization. There were many significant risk factors and consequences for polyvictimization including physical health issues, mental health issues, relational, attitudinal, and behavioral factors, experiencing prior victimization, and other life experiences. Across these domains, experiencing victimization was the most consistent correlate of polyvictimization. This finding is expected given past research that finds a link between experiencing victimization and experiencing victimization again in the future (Caravaca-Sánchez

& Wolff, 2021; De Vries & Farrell, 2018; Swan et al., 2021; Voith et al., 2020). These relationships may be explained by risk heterogeneity and state dependence perspectives. In population (risk) heterogeneity perspectives, people sometimes possess stable traits or other factors (e.g., binge drinking) that may place them at risk for victimization, and if those traits remain unchanged, they will continue to put them at risk (Sparks, 1981). By contrast, in state dependence perspectives, victims and/or perpetrators learn something during the initial victimization incident that may positively or negatively change how they react to future instances of victimization (Clay-Warner et al., 2016; Farrell et al., 1995).

Knowing that previous victimization is linked to later polyvictimization is important because if we understand that people who experience a victimization are at risk for experiencing more types of victimization in the future, then we can take steps to prevent the future victimization experience or at least mitigate the consequences if experienced. For example, it may be beneficial to implement policies at healthcare facilities requesting patients to fill out victimization screeners, which would remain private due to doctor-patient confidentiality. Screeners would then make it easier for doctors to get a holistic view of their patients and provide them with potential resources or services specific to victimization that may prevent future victimization experiences. In applying risk heterogeneity (Sparks, 1981) perspectives, service agencies may also work with their clients to identify stable characteristics (e.g., mental disability, mental illness, substance use) about their lives that may have exposed them to greater victimization risk. For example, if a client experienced a victimization while binge drinking in a social setting, a service provider could recommend implementing the buddy system (e.g., designating trusted person for safety) when attending social events. In this way, various service providers can come together for one very important goal – preventing future victimizations.

Future research can also assist in exploring ways to prevent polyvictimization from happening. Specifically, in examining prior victimization as a correlate, researchers could conduct qualitative interviews to identify an individual's initial victimization experience. They can then explore circumstances surrounding that incident and the victim's life during that time to identify potential risk factors to target in interventions. Another option for future research may be to perform analyses with mediators to examine whether prior victimization influences certain factors (e.g., binge drinking, social support, education) that may then lead to experiencing future types of victimization (i.e., polyvictimization). These analyses may show what factors are vital for policies and practitioners to target.

Across domains for the consequences, depression appears to be the most consistent, significant outcome, which may be explained by trauma exposure perspectives. Specifically, past research has shown that victims often report increased psychopathology symptoms (see Dworkin, DeCou, & Fitzpatrick, 2020; Dworkin, Menon, Bystrynski, & Allen, 2017). Thus, when individuals experience victimization (i.e., a form of trauma), it can impact their daily life functioning and mental health. These impacts to functioning and health are likely exacerbated for those experiencing multiple types of victimization. The research linking polyvictimization to depression used cross-sectional research designs, which may mean that depressive symptoms existed before experiencing multiple types of victimization or that depression and polyvictimization are also reciprocally related. Thus, there is a need for research that explores polyvictimization as a predictor of depression using longitudinal data. Additionally, again, qualitative data may also assist researchers in teasing out the depression-polyvictimization relationship. It may be that there are other factors influencing polyvictims' lives that are greater contributors to their depression than their experiences with victimization.

This relationship between polyvictimization and consequences is also important for policy and practice. Specifically, since polyvictimization has been linked with experiencing depressive symptoms, other mental illnesses, and physical health problems, it may be beneficial for victim service providers to also offer mental and physical health screeners to their clients. Polyvictims could then be referred to vital mental or physical health providers that may assist them in treating their depressive symptoms or physical health problem (e.g., overdose/addiction; Covid-19), which in turn may alleviate some of their risk for experiencing further victimization. Victim service agencies may need to ensure their employees have additional trainings to recognize symptoms of mental illness or other physical ailments and be able to refer those clients to the appropriate psychiatrists or physicians for treatment. Similarly, mental health professionals and medical personnel should also be trained to recognize indicators of victimization and be prepared to refer them to victim service agencies for targeted services (e.g., legal, safety planning, reporting, court dates) that they may be unequipped to handle.

Other consequences also appeared to reoccur across studies and may hold important implications for policy and practice. Specifically, multiple studies found that polyvictimization experiences were associated with increased antisocial or aggressive behaviors and decreased academic performance. Thus, similar to medical personnel and mental health professionals assessing and recognizing mental and physical health conditions in clients, it may also be beneficial for them to be able to identify antisocial or aggressive behaviors as potential indicators that polyvictimization has occurred. Acting out aggressively or engaging in antisocial behaviors may be indicators of underlying distress; thus, medical, mental health, and criminal justice professionals could use screening tools to identify potential polyvictimization and to target this trauma in programming. To address the link between experiencing polyvictimization and

negative academic performance impacts, colleges and universities should use early alert systems (e.g., system where professors submit feedback to school about whether students are at risk of failing their courses) to screen for potential polyvictims. For example, when a professor submits a student's name as being at potential risk for failing their course, the university could be proactive and partner with their victim assistance office or other college officials to identify the reasons for poor performance. The student could then decide whether they wanted or needed to pursue services from this office. This recommendation may be particularly salient for increasing retention and maintaining/improving student wellbeing.

The second main takeaway is that these studies were highly inconsistent in terms of what types of victimization comprise the concept of polyvictimization. This variation in types and number of types does not appear to influence the findings regarding correlates and consequences, but variation in types and recall period may influence prevalence estimates. In partial support of the findings of this review, past research has indicated that variation in polyvictimization measurement strategy can result in identifying different prevalence estimates and entirely different groups (i.e., different definitions and/or measurement strategies may result in different cases/victims being included in analyses) (see Ford & Delker, 2018; Segura & Guilera, 2018). These differences in group identification may be particularly problematic if targeted interventions were administered to specific groups based on these works. Thus, it is likely worthwhile to ensure measurement strategies and methods are sound to identify appropriate victim groups, produce accurate prevalence measures, and consistent relationships between polyvictimization and its correlates and consequences. This focus is especially needed if a goal of the study is to disseminate findings to policy makers and practitioners. As an example, researchers may enhance their study quality by exploring multiple methods to polyvictimization

measurement to see if they identify different groups of victims as Segura and Guilera (2018) did. Specifically, Segura and Guilera (2018) used data from the JVQ to examine whether using three different measurement strategies (i.e., one above the mean, 10% of sample highest victimization, latent class analysis) for both lifetime and past year victimization would produce the same polyvictims. They found that polyvictims were comparable across methods for sex, birth country, age, and socioeconomic status, but the polyvictims who were identified each had variation at the individual level, with unique victimization profiles (Segura & Guilera, 2018).

### **Implications and Recommendations**

Several implications can be gleaned from this review. First, due to the highly inconsistent nature of measuring and analyzing polyvictimization, it will be difficult to perform any sort of meta-analysis to statistically assess effect sizes among these relationships. Second, researchers should work toward including results that are straight-forward and concise to ensure their works have a possibility of being used by practitioners. Third, it may be beneficial to ensure study titles accurately represent the study's content. By doing this, researchers can proactively assist those wanting to review an area of literature. Fourth, this review included any subgroup (e.g., college students, older adults, justice-involved individuals) that included adults (i.e., 18 years old and older), but future reviews may benefit from explicitly searching out polyvictimization among specific subgroups and analyzing them separately.

This review also shed light on some specific recommendations that may assist in advancing the polyvictimization literature. As shown within this review, studies do use varying specific forms of victimization (e.g., sexual harassment, rape) to create polyvictimization measures, while others use broad summed and dichotomized types (e.g., sexual victimization

using multiple indicators, stalking). Rather than definitively deeming one of these techniques correct and the other wrong, moving forward researchers should consider using explicit wording and concept creation when discussing their methods and objectives. For example, if researchers create a polyvictimization measure using three individual forms of IPV (e.g., emotional, physical, sexual) rather than simply deeming this polyvictimization, they should be explicit and refer to this as IPV-specific polyvictimization. This method can then be applied to any conceptualization of polyvictimization, and for those that use the broad victimization items, simply label this polyvictimization. Thus, ensuring that articles use concise and consistent wording when describing their measures, researchers can make steps in the direction toward accurately understanding this phenomenon and reducing possible measurement error. It should be noted, however, that despite the many differences, most studies did appear to consistently note that polyvictimization was experiencing two or more types, regardless of whether the type was broad or specific. Thus, it may be beneficial for future research to follow the lead of existing research and conceptualize polyvictimization as two or more types of victimization.

Additionally, this method can also be applied to those examining traumatic events within measures of polyvictimization. As an example, some polyvictimization measures included traumatic events, such as car accidents and natural disasters. In doing so, researchers may be inaccurately labeling their variable as polyvictimization when they are actually exploring forms of victimization and traumatization. Thus, it may be beneficial to separate these items into polytraumatization and polyvictimization measures. Finally, as highlighted within this review, some specific victimization items unique to corresponding subsamples were included within those studies to create polyvictimization measures. Designing tailored victimization questions or selecting victimization types from secondary data sources that are most relevant to the sample

being studied are likely to increase the study quality. Future research should also consider conducting more polyvictimization research using general population samples to get a more accurate idea of how often this phenomenon occurs and what correlates and consequences are representative of those in the general population.

Finally, as can be seen from this review, much of the polyvictimization literature, especially among adults, uses cross-sectional data. Thus, there is a great need for studies that use longitudinal data when exploring polyvictimization. Longitudinal data are needed to tease out the time order between correlates and consequences. We need to know whether the factors we are considering correlates are in fact predicting polyvictimization, or whether the factors we are categorizing as outcomes in our models are true consequences from experiencing polyvictimization.

## **Limitations**

As with any study, there are limitations to this review. First, despite searching nine relevant databases/search engines, other search engines and search strategies do exist. Thus, future reviews may benefit from performing supplementary searches of other databases to identify additional works. Second, future reviews may wish to expand upon the presented search terms. Third, the decision to not include traumatic events and retrospective or lifetime polyvictimization measures may have limited the scope of this review, and it is possible important findings were missed. Thus, it may be beneficial to conduct another systematic review examining the correlates and effects of polyvictimization among adults, allowing for childhood/adolescent polyvictimization experiences. Finally, this literature is incredibly inconsistent in terms of what constitutes polyvictimization, and as such, measures of vicarious

victimization and psychological victimization/coercive control were included to increase the review's sample size. This decision is noted as a limitation because there is debate surrounding whether measures of coercive control and psychological victimization are true forms of victimization.

### **Conclusion**

The current review provides an essential document for researchers and practitioners to use in designing prevention and intervention strategies for adults experiencing polyvictimization. Using the PICOS framework as a guide, this review examined the existing research on polyvictimization correlates and consequences among adults. Two main research questions were examined (1) What are the most common correlates and consequences associated with polyvictimization? (2) What are the most common conceptualizations of polyvictimization? First, qualitative synthesis of the 25 studies shows that the most common correlate of polyvictimization was forms of prior victimization, and the most common consequence associated with experiencing polyvictimization was depression. Second, polyvictimization is most commonly conceptualized as past year physical victimization, sexual victimization, and IPV victimization with at least two or more types indicating polyvictimization. Future research within this area should consider working toward using more specific language when describing measures used to create this variable, as well as examining general population samples of adults.

## **CHAPTER III: POLYVICTIMIZATION AND PERSONALITY: DOES TYPE MATTER?**

### **Introduction**

Since the study of victimization first began almost a century ago (see Dussich, 2015), researchers have examined an array of factors associated with experiencing victimization. In addition to research showing an association between a plethora of factors and single incidents of victimization, researchers have also begun to reexamine categorizing victims. Researchers have identified different types of victims (i.e., recurring, repeat, poly) based on how many victimization incidents and forms they experience. Specifically, past research has broadly designated those who experience two or more incidents of victimization as recurrent victims (Fisher et al., 2010), and those who experience the same type of victimization more than once have been categorized as a repeat victim (Daigle et al., 2008). By contrast, researchers have defined polyvictimization as experiencing multiple different types of victimization (Finkelhor et al., 2005, 2007). These victim groupings are significant improvements to some of the first victim typologies. For example, Mendelsohn's (1956) typology classified victims into six categories based on their levels of culpability: (1) completely innocent victims (e.g., children); (2) victims with minor guilt (e.g., happened due to ignorance); (3) voluntary victims (i.e., guilt equal to the guilt of the offender); (4) victims more guilty than the offender (e.g., evokes another to commit crime); (5) victims who alone are guilty (e.g., attacker killed in self-defense); and (6) the imaginary victims (e.g., false accusation) (Sengstock, 1976).

Researchers have made significant strides in studying victimization in ways that do not place blame on victims. However, despite an abundance of research examining offender characteristics (see Martinez et al., 2017), offender intervention methods (see MacKenzie & Farrington, 2015), and crime deterrence strategies (see Braga et al., 2018), people still experience

victimization on a daily basis. Thus, it is important to also explore factors that may distinguish non-victims, victims, and polyvictims because these differences may hold critical information for preventing future victimizations. Recent research argues that if individuals perceive victimization as plausible, they may then be able to take precautionary measures to protect against it (Schreck, 2021). These perspectives raise interesting questions related to the types of factors that may distinguish non-victims from other types of victims. Specifically, population (risk) heterogeneity suggests that if traits or factors remain unchanged after an initial victimization incident, victimization will likely occur again (Clay-Warner et al., 2016; Sparks, 1981).

Examining both of these perspectives then presents questions about whether non-victims, victims, and polyvictims have distinguishable stable traits. If they do, what would this mean for using precautionary behaviors to prevent victimization or additional victimizations? Few studies examine correlates of polyvictimization, and even fewer studies examine traits that are mostly stable as it relates to polyvictimization using longitudinal data. However, at present, no study examines whether the Big Five personality traits (i.e., agreeableness, conscientiousness, neuroticism, openness, extraversion) play a role in distinguishing non-victims, victims, and polyvictims. Additionally, there are very few public longitudinal datasets that assess personality and also include items that can be used to create polyvictimization measures (e.g., National Longitudinal Study of Adolescent to Adult Health (Add Health); Pathways to Desistance). Both datasets provide the ability to longitudinally examine personality and polyvictimization, but the Pathways to Desistance data uses a sample of justice involved youth, which is particularly relevant due to the victim-offender overlap (see Jennings et al., 2012). Thus, the current study explores this association using longitudinal data to establish time order and presents implications

for how population heterogeneity and precautionary actions may play a role in mitigating the potential relationship between personality and polyvictimization.

### **Literature Review**

The Pathways to Desistance data includes multiple waves across several years, resulting in coverage of a range of participant ages (e.g., both adolescents and young adults). Thus, to increase breadth and relevance the literature reviewed here discusses a range of sample types. Additionally, as alluded to previously, the polyvictimization literature tends to focus more on the consequences of polyvictimization, rather than on factors that may predict it. As such, some studies that examine essential factors but treat polyvictimization as the predictor rather than the outcome are still discussed.

### **Broad Polyvictimization Correlates**

Past research examining polyvictimization among adults has identified a wealth of correlates associated with experiencing polyvictimization. Specifically, Williams and colleagues (2020) found that individuals who experienced issues with accomplishing daily living activities, low social support, traumatic events, poor health, and those who were a racial minority were at greater risk for polyvictimization. Other works have also found an array of significant risk factors for experiencing polyvictimization – reproductive coercion (Swan et al., 2021), negative peer support (DeKeseredy et al., 2019, 2020), perceptions of prison and correctional officers as hostile, race, age (e.g., being White and older equated to less risk), having a mental illness, attending religious services (Listwan et al., 2014), aggression, family conflict (Chokkanathan, 2021), increasing schooling (decreased polyvictimization) (Weitzman, 2018), prior victimization

(De Vries & Farrell, 2018), physical abuse in childhood (Voith, 2020), physical/emotional consequences from sexual assault, disclosure (Mennicke et al., 2021), and being younger, a first semester student, having an eating disorder, mental disability, bisexuality, binge drinking, greater number of sex partners, sorority member, and being single (Snyder et al., 2021). Additionally, for those involved in the system, research has shown that experiencing childhood or adulthood community victimization, past prison sentence, disciplinary infractions, and working in a prison were significantly related to increased polyvictimization risk (Caravaca-Sánchez & Wolff, 2021). Chan and colleagues' (2021) meta-analysis also found depression, PTSD, and experiencing one type of victimization are all significantly correlated with family polyvictimization.

In addition to correlates related to polyvictimization among adults, research has also identified factors related to experiencing polyvictimization among youth. Elsaesser and Voisin (2015) examined polyvictimization and its correlates among African American adolescents living in urban areas, and they found several significant correlates of polyvictimization grouped by sex. Specifically, among female youth, those who received free school lunch, reported risky peer norms, and had higher aggression indicated higher odds of polyvictimization, but having higher student-teacher connectedness was related to lower odds of experiencing polyvictimization (Elsaesser & Voisin, 2015). However, for male youth, anxiety, aggression, having a higher GPA, and participating in afterschool activities were all significantly associated with higher odds of experiencing polyvictimization, but reporting withdrawal symptoms was associated with lower odds of experiencing polyvictimization (Elsaesser & Voisin, 2015). Similarly, Sterzing et al. (2017) examined correlates of polyvictimization among a national sample of transgender, genderqueer, and cisgender sexual minority youth, finding that

genderqueer identity (for those assigned male at birth), peer rejection, posttraumatic stress, and family microaggressions were all significant predictors of polyvictimization.

In addition to these correlates, other research has identified experiencing community disorganization, low school commitment, poor family management, family conflicts, peer social choices, and withdrawn and disruptive behavioral problems – as identified by teacher – as significant in predicting polyvictimization (Riley et al., 2020). Similar to some of these correlates, Finkelhor and colleagues' (2009) explored pathways to polyvictimization in their national sample of youth. They found emotional problems to be significant in predicting polyvictimization among younger participants, and dangerous communities, dangerous families, and problem families were all significant in predicting polyvictimization among the older youth (Finkelhor et al., 2009). As can be seen with the diverse range of correlates discussed above, studies primarily focus on social and behavioral correlates (e.g., substance use, peer relationships, activities, family relationships), and some examine individual-level mental health issues (e.g., PTSD, depression) as predictors of polyvictimization. Thus, much more research is needed to expand upon the literature focused on individual-level risk factors for polyvictimization.

### **Victimization, Polyvictimization, and Stable Traits**

It is important to highlight that research examining relatively stable traits and victimization does already exist (Boccio & Beaver, 2021; Bowling et al., 2010; Cawvey et al., 2018; Daigle & Teasdale, 2018; Fontaine et al., 2018; Flexon et al., 2016; Kulig et al., 2019). For example, Boccio and Beaver (2021) examined the association between psychopathic personality traits and victimization using the Add Health data and found that psychopathic personality traits

did, indeed, significantly predict increased odds of victimization experiences. Similarly, Fontaine and colleagues (2018) used longitudinal data to explore the relationship between callous-unemotional traits and peer victimization and found that callous-unemotional traits in childhood were significantly related to physical victimization during adolescence. Other traits similar to these have also been explored. Specifically, Flexon and colleagues (2016) found that the Dark Triad (i.e., machiavellianism, narcissism, psychopathy) significantly predict victimization, while controlling for low self-control.

By contrast, Bowling and colleagues (2010) examined personality (i.e., positive affectivity, negative affectivity, core self-evaluations) and workplace victimization. Their findings showed a significant relationship between personality and supervisor victimization, with negative affectivity having the strongest effect (Bowling et al., 2010). Similarly, Cawvey et al. (2018) used national-level data to examine the Big Five personality traits and victimization. Findings show that agreeableness decreases the probability of victimization, but extraversion and openness increase the probability of victimization (Cawvey et al., 2018). Kulig et al. (2019) also used the Big Five personality inventory to predict victimization. They found neuroticism to be positively associated with school-based victimization among adolescents (Kulig et al., 2019). In addition to these individual studies, Pratt and colleagues (2014) conducted a meta-analysis of the literature on self-control and victimization, finding that self-control consistently predicts victimization across studies, but this effect tends to decrease when studies control for risky lifestyle measures.

Building on the studies examining stable traits and single victimization, research has also used national data to examine psychopathic traits as they relate to recurring victimization. Daigle and Teasdale's (2018) findings show that psychopathic traits can, indeed, distinguish across

groups (i.e., non-victims and recurring victims; single-wave victims and recurring victims). This study is particularly important to acknowledge due to its victimization measure (e.g., three categories – non-victim, single-wave victim, recurring victim) and the similarities between recurring victimization and polyvictimization. However, to my knowledge, only two studies have examined a stable trait and polyvictimization (Kerig & Modrowski, 2018; Tanksley et al., 2021). For example, Kerig and Modrowski (2018) examined dissociation, numbing, callous-unemotional traits, borderline personality traits, and offending as potential predictors of polyvictimization among justice-involved youth. Their findings showed a significant relationship between polyvictimization and both traits (i.e., callous-unemotional, borderline personality) (Kerig & Modrowski, 2018). Others have examined the relationship between self-control and polyvictimization using longitudinal data. Tanksley and colleagues (2021) used data from the Environmental Risk Longitudinal Twin Study to examine whether self-control, conduct disorder, and anxiety were predictors of polyvictimization. Interestingly, after adjusting for genetic factors, only self-control significantly predicted polyvictimization (Tanksley et al., 2021).

### **Polyvictimization and Personality: Theoretical Perspective**

As briefly noted previously, past research has found neuroticism (e.g., anxiety, depression, anger, emotional, worrisome, insecurity (Barrick & Mount, 1991)) to be positively associated with victimization among adolescents (Kulig et al., 2019). Specifically, those with the neuroticism personality trait often have high emotional reactivity and are more vulnerable to stress than those without this trait (see Lonsdorf & Merz, 2017). Being more vulnerable to stress may then lower an individual's defenses or may heighten negative reactions. In this way, neuroticism may also inhibit someone's ability to recover after experiencing an initial

victimization, putting them at greater risk of future victimizations (Sparks, 1981). Further, from what we know about population (risk) heterogeneity perspectives, if traits or factors remain unchanged (which is likely for stable traits like personality), victimization is likely to continue occurring after an initial event (Clay-Warner, et al., 2016; Sparks, 1981).

It is also likely that individuals high in extraversion (e.g., social, assertive, active, talkative, expressive (Barrick & Mount, 1991)) may have increased risk for experiencing polyvictimization. Supporting this assertion, past research has found extraversion to be linked with experiencing victimization (Cawvey et al., 2018). Extraversion may be linked to victimization because someone who thrives in large social circles and outings is likely to come into contact with would-be offenders and participate in activities that may increase their vulnerability. Someone who is high in extraversion may experience one victimization and cope with it by going out with others to social settings and consuming substances. Past research has shown traits within the extraversion dimension are linked to alcohol consumption, and peers often influence drinking patterns (Baer, 2002). In this way, this trait may be strongly related to polyvictimization, but more work needs to be completed to explore these relationships further.

### **Current Study**

As presented, some research does find a link between certain stable traits, polyvictimization, and victimization more generally. However, less is known longitudinally about the Big Five personality traits and polyvictimization. Thus, the current study fills this gap by analyzing the relationship between the Big Five personality traits (i.e., openness, conscientiousness, extraversion, agreeableness, neuroticism) and polyvictimization using the Pathways to Desistance data to establish time order between these two concepts (i.e., personality

and polyvictimization). There are two primary research questions: (1) Do individuals with certain personality types experience a greater amount of polyvictimization than other personality types? (2) If there are differences, which personality types have a stronger effect on experiencing polyvictimization.

It is expected that certain personality types will experience a greater amount of polyvictimization than others. Specifically, it is expected that people who score high on measures of neuroticism and extraversion will likely experience a greater amount of polyvictimization and that these traits will have stronger effects in predicting polyvictimization as compared to other personality types (i.e., conscientiousness, agreeableness, openness). It is expected these other three personality dimensions will not be significantly associated with polyvictimization due to those who are high on these traits often possessing positive coping skills and traits less likely to be linked to risky lifestyles (e.g., imaginative, intelligent, insightful, happy to approach challenges, high impulse control, goal directed, mindful, kind, empathetic, participates in prosocial behaviors) (Barrick & Mount, 1991)).

## **Methods**

### **Data and Sample**

The current study uses data from the Pathways to Desistance project. The Pathways to Desistance study utilized a multi-site longitudinal research design to examine desistance from crime among a sample of justice involved youth. The study used a prospective research design with diverse measures from self-reports, collateral reports, and official records (Schubert et al., 2004). The sample includes 1,354 adjudicated adolescents from court systems in Philadelphia, Pennsylvania, and Phoenix, Arizona. Adolescents had to be between 14 and 17 years old when

they committed the offense and all felony offenses were eligible except minor property crimes, misdemeanor weapons offenses, and misdemeanor sexual assault. Drug offenses were limited to 15% of the sample at each site due to over saturation of males committing this crime type (Schubert et al., 2004). Baseline interviews were completed between 2000 and 2003, with six follow-up interviews conducted every six months after baseline interviews. Four more interviews were conducted every 12 months after the sixth follow-up interview.

Participants over 18 completed an informed consent, and those who were under 18 had parents complete an informed consent for them. Following this, participants and an adult collateral informant were given baseline (i.e., background characteristics, indicators of individual functioning, psychosocial development and attitudes, family context, personal relationships, community context) interviews. One year after baseline and every year following, the participant identified a peer informant rather than a parent for collateral interviews. Release interviews were also obtained after participants had a stay at a residential facility. Only measures from baseline (demographic and parental warmth/hostility), wave 4 (personality, substance use, friendship quality, social activities), and waves 7 through 10 (polyvictimization) are used in this analysis. Parental warmth/hostility measures are used from baseline due to a large number of missing cases in wave 4 but also because levels of parental interactions are likely impactful during early adolescence and may carry long-term consequences related to experiencing polyvictimization. Wave 4 was selected for the personality measures because this was the only wave that personality was assessed. Intimate Partner Violence measures were first administered at wave 7; thus, waves 7-10 were used to create the polyvictimization measures. Participants' ages ranged from 14-19 at baseline, 16-21 at wave 4, 18-23 at wave 7, and 20-26 in wave 10.

Sample characteristics are presented in Table 2.1. The average participant age was 16 years old during the baseline administration. The majority of the sample was male (86%). Most participants were Black (41%) and Hispanic (33%), and the majority of participants were from the Philadelphia site (52%). At wave 7, approximately 32% of participants indicated experiencing one type of victimization and 30% experienced polyvictimization. About 26% experienced a single type of victimization and over half (i.e., 61%) of the sample experienced two or more types of victimization at any wave 7 through 10.

**Table 2.1**  
*Sample Characteristics(N=1,354)*

	<b>%(n)</b>	<b>Range</b>	<b>N</b>
<b>Dependent Variables</b>			
Polyvictimization (Wave 7)		0-2	1,215
No Victimization	38.85(472)		
Single Type Victim	31.52(383)		
Polyvictim	29.63(360)		
Polyvictimization (Across Waves)		0-2	1,272
No Victimization	13.21(168)		
Single Type Victim	25.79(328)		
Polyvictim	61.01(776)		
<b>Independent Variables</b>			
	$\bar{x}(s)$		<b>N</b>
Neuroticism	2.38(0.51)	1-4.53	1,178
Extraversion	3.59(0.47)	1.78-5	1,178
Openness	3.08(0.61)	1-5	1,178
Agreeableness	3.26(0.52)	1.57-5	1,177
Conscientiousness	3.66(0.48)	2.22-5	1,178
Binge Drinking	2.01(1.94)	1-9	1,227
Illicit Drug Use	0.24(0.80)	0-8	1,229
Marijuana Use	2.76(2.89)	1-9	1,228
Social Activities	2.74(1.24)	1-5	1,227
Friendship Quality	3.10(0.84)	1-4	1,231
Warm Mom	3.14(0.79)	1-4	1,350
Hostile Mom	1.59(0.45)	1-3.92	1,350
Warm Dad	2.09(1.10)	1-4	1,334
Hostile Dad	1.33(0.46)	1-4	1,334
<b>Control Variables</b>			
Age	16.04(1.14)	14-19	1,354
Sex (%) n			1,354
Female	13.59(184)	0-1	
Male	86.41(1,170)		
Race/Ethnicity (%) n		1-4	1,354
Black	41.43(561)		
Hispanic	33.53(454)		
White	20.24(274)		

Other	4.80(65)		
Site Location		0-1	1,354
Philadelphia	51.70(700)		
Phoenix	48.30(654)		

## Missing Data

Due to the complexities involved with longitudinally studying a sample of justice-involved youth, missing data are present. However, from baseline to the final wave, seven years later, the researchers maintained a retention rate of 84% or better (Mulvey et al., 2014). Over the course of data collection, 48 participants passed away and 46 formally dropped out. Participants missed interviews for some of the waves but returned for interviews at other time points (Mulvey et al., 2012). After listwise deletion, the final two models contained 1,130 and 1,083 cases, which meant about 16% and 20% of the sample were missing. The amount missing varies due to the across waves polyvictimization measure having more cases than in the wave 7 measure. This variation exists because some participants who were not included in wave 7 were included in waves 8-10. The across waves polyvictimization measure only counts a participant as missing if they were missing in all included waves (i.e., 7-10). To determine if listwise deletion was appropriate or if the data should be imputed, Little's tests of missing completely at random (MCAR) and covariate-dependent missingness (CDM) were performed using the 'mcartest' command in Stata 17. The MCAR and CDM tests were nonsignificant indicating the missing data for these variables can be viewed as missing completely at random (Li, 2013). Thus, listwise deletion is appropriate for this analysis (Garson, 2015). Additionally, the largest percent of missing data resides in the scores for personality (i.e., 13%) and in the wave 7 polyvictimization measure (i.e., 10%). Those missing from the personality variables were missing due to problems with administration and data (i.e., bug in system; partial interview; measure did not exist in

version; unknown), while other cases were missing due to participants missing the entire interview. All other independent variables had missing at or below 9%.

## **Measures**

### ***Dependent Variables***

*Polyvictimization.* Participants exposure to polyvictimization was assessed in two different ways using the exposure to violence (i.e., experienced and witnessed) and domestic violence questions. For the exposure to violence questions, participants were asked if they had been: a) chased where you thought you might be seriously hurt; b) beaten up, mugged, or seriously threatened; c) raped, attempted rape, or sexually attacked in some other way; d) attacked with weapon; e) shot at; f) shot – during the recall period (i.e., past year for waves 7-10). Respondents could answer yes or no. The above questions were used to create individual broad types of victimization. For example, measures of violent (i.e., a) chased where thought might be seriously hurt; b) beaten up, mugged, seriously threatened; c) attacked with weapon; d) shot at; e) shot) and sexual (i.e., a) raped, attempted rape, or sexually attacked in some other way) were created. For these two measures, those who experienced any of the victimization questions were coded as a 1 and 0 if they experienced none.

Similarly, the witnessed exposure to violence questions asked participants if they had witnessed someone be – a) chased where thought they might be seriously hurt; b) beaten up, mugged, or seriously threatened; c) raped, attempted rape, or sexually attacked in some other way; d) attacked with weapon; e) shot at; f) shot; g) killed as result of violence – during the past year with yes/no responses. Using the same methods as used to create the experienced violence questions, two dichotomous witnessed violence measures were created – witnessed violent

victimization and witnessed sexual victimization. Dichotomous (yes/no) measures from the domestic violence inventory were also used that assessed whether participants had experienced any physical abuse (e.g., Has your partner grabbed, pushed, or shoved you?), sexual abuse (e.g., "Has your partner used physical force to have sex with you?), or emotional abuse (e.g., Has your partner called you partner stupid, fat or ugly?) during the past year. The original IPV variables within the Pathways data include a skip logic, which coded those who had not experienced any form of the victimization being assessed as missing, and those who indicated not being in a relationship in an earlier question were also categorized as missing. However, these cases (i.e., not experienced any victimization and not in relationship) were coded into the measures used within this study as being no's (0).

From the above original variables, two polyvictimization constructs were created. Both conceptualizations use an ordinal classification (i.e., 0 – non-victim, 1 – single type victim, 2 – polyvictim). Polyvictims are those who experienced two or more broad types. For example, someone who experienced a sexual victimization and were violently victimized would be considered a polyvictim.

A polyvictimization measure was created for within wave 7 (i.e., past year) and across waves (i.e., waves 7-10) measure. The second measure examines polyvictimization within and across waves 7-10. The across wave measure only included polyvictims – no repeat victims (i.e., same type within or across waves) were included. For an example of coding, the dichotomous category variables for violent victimization were created within each wave and then summed to create a count measure of violent victimization experienced across waves. The count variable was then collapsed into experienced violent victimization (1) and experienced no violent victimization (0). This method was then used for the other types. Types were then summed to

create a polyvictimization count across waves, which was then collapsed into three categories (i.e., non-victim, single type victim, polyvictim). This conceptualization (e.g., including physical IPV with violent victimization) was used to account for possible overlap between those who reported experiencing a violent victimization in the exposure to violence questions (no perpetrator identified) and those who reported experiencing physical abuse from a partner in the domestic violence inventory. Witnessing victimization was included because past research has found support for the inclusion of witnessing violence when creating polyvictimization measures (Listwan et al., 2014).

### ***Independent Variables***

*Personality.* The NEO-Five Factor Inventory (short form) was only administered at wave 4 and was used to determine participants' personality domains. The NEO provides emotional, interpersonal, experiential, attitudinal, and motivational personality style assessments (Costa & McCrae, 1989; McCrae & Costa, 2004). This inventory has been widely used within the literature, and their initial works have been cited thousands of times, with researchers confirming the inventory's reliability (Murray, 2003) and validity (McCrae & Costa, 2004). The NEO-short form contains 120 statements that assess five main personality domains. Some sample statements from this inventory include: "I shy away from crowds of people;" "I get nervous easily;" "I am relaxed, handle stress well" (CRHC Data Center, 2017). Participants were asked to rate how true they felt statements were about themselves on a five-point Likert scale (e.g., 1 – disagree strongly, 5 – agree strongly). Each domain of personality is its own variable (i.e., extraversion, agreeableness, conscientiousness, neuroticism, openness to experience), calculated from the domain's associated scale items into a mean score. Higher scores indicate greater presence of the

identified personality trait/domain. Each domain showed acceptable or high internal consistency: neuroticism ( $\alpha = .68$ ), extraversion ( $\alpha = .74$ ), openness ( $\alpha = .59$ ), agreeableness ( $\alpha = .62$ ), conscientiousness ( $\alpha = .85$ ). The personality inventory was only assessed during wave 4. Participants had a mean score of 2.38 on the neuroticism scale, indicating moderate levels of neuroticism. The participant average for extraversion was larger ( $\bar{x} = 3.59$ ) indicating the sample had higher scores for extraversion than neuroticism. Similarly, the mean score for openness was 3.08, and the mean score for agreeableness was 3.26. The highest personality mean for participants was conscientiousness at 3.66.

*Parental Warmth.* Conger and colleagues' (1994) Quality of Parental Relationships Inventory was used to assess both mother and father to child relationships. Mother/father designation included male/female parental figures responsible for raising the participants not solely biological parents. Parental warmth items for mother (e.g., How often does your mother let you know she really cares about you?) and father (e.g., How often does your father tell you he loves you?) were included as two separate variables. Past research has found that parental warmth in combination with monitoring reduces victimization (Tillyer, Ray, Hinton, 2018), and meta-analyses have found that perceived parental warmth and personality are significantly related (Khaleque, 2013). The warmth scale contains 18 items total (e.g., 9 items for each parent). Mean scores for father and mother figures were used. Response categories ranged from (1) always to (4) never on a 4-point Likert scale. Composite scores were generated using reverse coding (CRHC Data Center, 2017). Higher scores on the warmth scale indicate a more supportive and nurturing parental relationship. Participants indicated that their relationship with their mother was, on average, more nurturing and supportive than their relationship with their father ( $\bar{x} = 3.14$ ;  $\bar{x} = 2.09$ , respectively). Scales showed high internal consistency (e.g., mother:  $\alpha$

= .92; father:  $\alpha = .95$ ). The parental warmth scores were used from baseline. Baseline scores were used to establish that parental warmth predates polyvictimization and because participants who were 20 years old or older were excluded from this measure at wave 4. It is expected that there will be a negative association between parental warmth scores and experiencing polyvictimization.

*Parental Hostility.* Using the above-described inventory, parental hostility items for mother (e.g., How often does your mother get angry at you?) and items for father (e.g., How often does your father throw things at you?) were used. Mother/father designation was not reserved for biological parents, but rather, male/female parental figures responsible for raising the participants. The parental hostility scale contains 24 items total (e.g., 12 items for each parent), and mean scores were calculated for each parent using these items. Response categories ranged from (1) always to (4) never on a 4-point Likert scale. Composite scores were generated using reverse coding (CRHC Data Center, 2017). Higher mean scores on the hostility scale indicate a more hostile relationship. To examine parental hostility and its relationship to polyvictimization, parental hostility was measured at baseline. By contrast, on average, respondents reported similar levels of hostility from both their mother and father ( $\bar{x} = 1.59$ ;  $\bar{x} = 1.33$ , respectively). Scales showed acceptable internal consistency (e.g., mother:  $\alpha = .85$ ; father:  $\alpha = .88$ ). It is expected that there will be a positive association between parental hostility scores and experiencing polyvictimization.

Past research has found a link between parental attachment and victimization (Nikiforou et al., 2013), which is likely related to experiencing warmth or hostility from parental figures. Support for measuring parental warmth and hostility during early adolescence can also be found in past empirical works. For example, research finds that interactions with parents are often

greatest in early adolescence (Wang et al., 2007). Linder and Collins (2005) found that negative parental relationships in early childhood predicted victimization in early adulthood, but that peer relationships in later adolescence had a much larger effect than family conflict. It is possible that participants' relationships with their parental figures have long lasting effects and that these effects may have an impact on their risk for future victimization.

*Friendship Quality.* In Wave 4, participants were asked 10 items to assess the quality of their friendships and support offered (e.g., "How much do you depend on these friends") (CRHC Data Center, 2017). Answer categories were on a four-point Likert scale - (1) "not at all," (2) "a little," (3) "quite a bit," and (4) "very much". On average, respondents indicated relatively high ( $\bar{x} = 3.10$ ) levels of support/friendship. The scale had acceptable internal consistency ( $\alpha = .81$ ). A mean score was calculated from the 10 items and used in analysis. Findings from a meta-analysis by Chiu, Clark, and Leigh (2018) found friendship quality was associated with social anxiety, and anxiety (i.e., a characteristic of neuroticism) has been linked to victimization (Kulig et al., 2019). Thus, it is expected that lower quality friendships will be related to polyvictimization.

*Social Activities.* Included in the Pathways to Desistance data, were four questions drawn from Osgood and colleagues' (1996) Monitoring the Future Questionnaire. These items (e.g., How often did you get together with friends informally?; How often do you go to parties or other social gatherings?; How often do you ride around in a car (or motorcycle) just for fun?; On a typical week, on how many evenings did you go out for fun and recreation?) were used to assess activities occurring without presence of authority figures. The first three items were scored on a five-point Likert scale ranging from "never" to "almost every day," and the last item included the following categories (e.g., (1) less than one time, (2) one, (3) two, (4) three, (5) four or five, (6) six or seven) (CRHC Data Center, 2017). On average, respondents participated in unstructured

social activities closer to one to times a month ( $\bar{x} = 2.74$ ). The measure had moderate internal consistency ( $\alpha = .68$ ). A mean score for all four items was produced and used. Wave 4 measures of social activities are used to examine how social activities influence polyvictimization.

Inclusion of these items are supported theoretically by Cohen and Felson's (1979) work that argues victimization is likely to happen when motivated offenders, suitable targets, and lack of capable guardianship converge in time and space. This convergence is much more likely to happen when going out and engaging with potential motivated offenders. It is expected that as routine social activities increase, the risk of experiencing polyvictimization will also increase.

*Binge Drinking.* One item from wave 4 was used to create a measure of binge drinking. Participants were asked within the past six months how often they had five or more drinks at one time. Response categories ranged from (1) not at all to (9) every day. On average, respondents participated in binge drinking one to two times a week. Past research has identified characteristics of personality, such as sensation seeking and impulsivity as significant predictors of binge drinking (O'Leary et al., 2019), and binge drinking has also been linked to higher odds of experiencing victimization (Daigle et al., 2020). It is expected that as the frequency of binge drinking increases, so too will the risk of experiencing polyvictimization.

*Illegal Drug Use.* A measure for illegal drug use from wave 4 was included. Participants were asked about whether they had used 9 different drugs (i.e., sedatives/tranquilizers, stimulants/ amphetamines, cocaine, opiates, ecstasy, hallucinogens, inhalants, amyl nitrate/odorizers/rush, other drugs) in the past six months. A variety score of the number of illegal drugs used in the past six months was created. On average, participants indicated using illegal drugs less than one to two times in the past six months. Past research has identified a relationship between the Big Five personality traits and drug use. Specifically, Livingston et al.

(2016) found extraversion and conscientiousness to be significant predictors of drug use, and others have identified a link between using illicit drugs and victimization (Daigle et al., 2020). A positive association is expected between number of illicit drugs used and polyvictimization.

*Marijuana Use.* Due to its wide acceptance and legalization today (Drug Policy Alliance, 2021; Green, 2021), we know that the effects and factors associated with marijuana use are different from those of other illicit drugs. Researchers have found that neuroticism and characteristics of personality such as impulsivity and aggression are linked to marijuana use (Lee-Winn et al., 2018). Others have connected polyvictimization with heightened marijuana use (Plummer et al., 2020). It is expected that as marijuana use frequency increases, the risk for polyvictimization will also increase. Thus, a separate measure for marijuana use was included. Most of the participants indicated using marijuana relative to any other illicit drug. From wave 4, participants were asked “In the past six months, how many times did you use marijuana or hashish?” Response categories ranged from (1) not at all to (9) every day. On average, participants indicated using marijuana closer to three to five times a week.

### ***Control Variables***

All demographic control variables identified below have been included as controls in past research examining the Pathways data (Daigle, 2018; Daigle & Harris, 2020). All controls were used from baseline.

*Race/Ethnicity.* A measure of participant’s race/ethnicity was included. Categories were dummy coded as (1) Black, (2) Hispanic, (3) White, and (4) Other (e.g., Native American, Asian, and another race/ethnicity).

*Age.* To ensure anonymity a truncated (e.g., 14-19) continuous age variable was included.

*Sex.* A measure for sex was included. These data include only (0) female and (1) male participants.

*Site Location.* To account for possible differences in participants' experiences due to location, a measure to control for participant site location was included. The measure was dummy coded as (0) Philadelphia and (1) Phoenix.

### **Analytic Plan**

Data were analyzed using Stata 17. Analyses were performed in several steps. First bivariate correlations (i.e., pearson, phi, kendall's tau, biserial) were conducted across the selected waves to examine relationships between the Big Five (i.e., NEO-Five Factor Inventory) personality traits, polyvictimization (non-victims, single-type victims, and polyvictims), and covariates. Second, at the multivariate level, due to the ordered nature (i.e., 0 – nonvictim, 1 – single type, 2 – polyvictim) of the dependent variable, ordered logistic regression were run. Before performing analysis, tests were run to ensure the models did not violate the assumptions of ordered logistic regression. Specifically, the models satisfy the first two assumptions of ordered logistic regression (i.e., dependent variable measured at ordinal level; one or more independent variables are continuous, categorical, or ordinal). The second step involved performing tests to see if the models satisfied the last two assumptions of ordered logistic regression (i.e., no multicollinearity; presence of proportional odds). To ensure multicollinearity was not present the 'estat vif' command was used. Model mean vif statistics were below 1.41, indicating absence of multicollinearity. Next, to ensure the fourth assumption of ordered logistic regression was not violated, two tests of proportional odds (i.e., omodel logit and brant) were performed for each model. No significant p-value was found for either test, meaning the models

did not violate the proportional odds assumption. Thus, two ordered logistic regressions were performed to examine if personality type is associated with being a polyvictim in wave 7 and across waves 7-10. The magnitude of effects for each personality trait were compared to examine if it similarly impacts polyvictimization across types, while controlling for relevant covariates.

## **Results**

First, prevalence estimates for polyvictimization are relatively high within this sample of justice-involved youth. Approximately 32% of participants indicated experiencing one type of victimization and 30% experienced polyvictimization (i.e., two or more types) within wave 7. As expected, prevalence estimates are higher when examining polyvictimization within and across wave 7-10. About 26% of participants experiencing a single victimization type and over half (i.e., 61%) experiencing polyvictimization across waves 7-10.

**Table 2.2 Correlation Matrix**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1)S7 poly	1.000																			
(2)Across poly	<b>.544</b>	1.000																		
(3)Neuroticism	.019	<b>.072</b>	1.000																	
(4)Extraversion	.010	-.001	<b>-.399</b>	1.000																
(5)Openness	.022	.034	<b>-.061</b>	<b>.279</b>	1.000															
(6)Agreeable	<b>-.079</b>	<b>-.086</b>	<b>-.438</b>	<b>.312</b>	<b>.203</b>	1.000														
(7)Conscientious	.021	-.031	<b>-.609</b>	<b>.385</b>	<b>.202</b>	<b>.472</b>	1.000													
(8)Binge drink	<b>.069</b>	.037	<b>.085</b>	.048	-.003	<b>-.212</b>	<b>-.155</b>	1.000												
(9)Illicit drugs	.041	.022	<b>.189</b>	.039	.043	<b>-.228</b>	<b>-.200</b>	<b>.318</b>	1.000											
(10)Marijuana	<b>.117</b>	<b>.093</b>	<b>.116</b>	.004	.008	<b>-.256</b>	<b>-.165</b>	<b>.373</b>	<b>.377</b>	1.000										
(11)Social	<b>.091</b>	<b>.083</b>	-.029	<b>.119</b>	<b>-.089</b>	-.025	-.056	<b>.362</b>	<b>.176</b>	<b>.351</b>	1.000									
(12)Friendship	-.030	.002	<b>-.150</b>	<b>.184</b>	<b>.069</b>	<b>.200</b>	<b>.150</b>	<b>-.129</b>	<b>-.102</b>	<b>-.094</b>	-.027	1.000								
(13)Warm mom	-.006	-.010	<b>-.105</b>	.036	-.020	<b>.113</b>	<b>.127</b>	<b>-.121</b>	<b>-.078</b>	<b>-.099</b>	-.021	<b>.059</b>	1.000							
(14)Hostile mom	<b>.053</b>	<b>.089</b>	<b>.106</b>	<b>.088</b>	<b>.082</b>	<b>-.155</b>	<b>-.083</b>	<b>.076</b>	<b>.091</b>	<b>.112</b>	-.006	-.031	<b>-.218</b>	1.000						
(15)Warm dad	-.026	-.035	-.056	<b>.073</b>	.034	<b>.128</b>	.054	.004	-.039	-.030	.040	<b>.069</b>	<b>.187</b>	<b>-.106</b>	1.000					
(16)Hostile dad	-.011	-.028	<b>.070</b>	-.002	.019	<b>-.121</b>	<b>-.127</b>	<b>.124</b>	<b>.093</b>	<b>.073</b>	<b>.061</b>	-.039	<b>.187</b>	<b>-.182</b>	<b>.244</b>	1.000				
(17)Age	.001	-.027	<b>-.067</b>	.029	<b>.063</b>	.012	<b>.089</b>	.049	.039	.021	<b>.108</b>	<b>-.061</b>	<b>-.067</b>	<b>.080</b>	<b>-.086</b>	.013	1.000			
(18)Sex	.013	<b>-.035</b>	<b>-.076</b>	-.028	<b>-.086</b>	<b>-.089</b>	-.010	<b>-.147</b>	-.000	<b>-.081</b>	-.014	<b>-.122</b>	<b>.088</b>	<b>-.098</b>	<b>.079</b>	.029	.071	1.000		
(19)Race	<b>-.097</b>	<b>-.095</b>	<b>.075</b>	<b>.058</b>	<b>.064</b>	-.015	<b>-.115</b>	<b>.242</b>	<b>.218</b>	.038	-.007	<b>-.076</b>	<b>-.119</b>	<b>.050</b>	<b>.069</b>	<b>.188</b>	.091	<b>-.031</b>	1.000	
(20)Site	<b>-.187</b>	<b>-.212</b>	<b>.153</b>	.007	.022	<b>-.073</b>	<b>-.235</b>	<b>.204</b>	<b>.142</b>	.027	-.036	<b>-.178</b>	<b>-.155</b>	<b>.096</b>	<b>.027</b>	<b>.160</b>	<b>-.066</b>	<b>.089</b>	<b>.984</b>	1.000

Second, results for bivariate analyses are presented above in the correlation matrix in Table 2.2. As this analysis included many variables of different measurement levels, the appropriate correlation coefficients were chosen and calculated based on the level of measurement for each variable being examined (see Khamis et al., 2008 for detailed description of appropriate correlation coefficients based on levels of measurement). At the bivariate level, small but significant correlations can be found between the two measures of polyvictimization and two of the personality types. Specifically, agreeableness exhibited a negative and statistically significant correlation with experiencing polyvictimization at wave 7 and across waves 7-10. Neuroticism was also positively and significantly associated with experiencing polyvictimization across waves 7-10. Among the other independent variables, binge drinking and marijuana use appeared to have the most consistently significant and strongest correlation to other the other variables included, while for the controls, site location (i.e., Philadelphia or Arizona) appeared to have stronger correlations with the other variables than any other control.

Results for the ordered logistic regression models examining personality and polyvictimization in wave 7 are presented in column 1 of Table 2.3. When controlling for other factors at the multivariate level, many of the significant relationships found at the bivariate level dropped out of significance. Column 1 shows results for the model that used the polyvictimization dependent variable comprised of the following types: violent victimization (including physical IPV), sexual victimization (including sexual IPV), emotional IPV, witnessing violent victimization, and witnessing sexual victimization. In this model, only one personality type significantly predicted experiencing polyvictimization. Specifically, for a one unit increase in agreeableness, the odds of experiencing polyvictimization relative to no victimization or a single type of victimization were 28% lower, while controlling for other variables (OR=0.72). At

the .05 level only one other factor was significantly associated with polyvictimization, site location. Those interviewed in Phoenix have lower odds (OR=0.37) of experiencing polyvictimization relative to those experiencing no victimization or a single victimization type.

Despite there only being two variables significantly associated with polyvictimization in wave 7 at the .05 level, effects were relatively strong for both neuroticism (OR=1.12) and extraversion (OR=1.11). If significant, these effects would indicate that those with higher scores on the neuroticism and extraversion scales would also have higher odds of experiencing polyvictimization relative to experiencing no victimization or a single type of victimization. Openness also had a strong effect (OR=1.20) and a p-value of .07, which suggests those who scored high on the trait of openness have greater odds of experiencing polyvictimization with wave 7 relative to experiencing no victimization or a single form of victimization in wave 7.

In column 2 of Table 2.3, results for the model examining polyvictimization across waves 7-10 are shown. Only one personality type significantly predicted experiencing polyvictimization across waves. Specifically, for a one unit increase in openness, the odds of experiencing polyvictimization compared to no victimization or a single type are 1.26 greater, holding all else constant. Different from the first model, one measure of parental hostility was also significant. For a one unit increase in hostility from a maternal figure, the odds of experiencing polyvictimization compared to none or a single type of victimization are 1.61 greater, controlling for other factors. The site location variable also significantly predicted polyvictimization again in this model, with those who were interviewed at the Phoenix location having lower odds of experiencing polyvictimization relative to a single type or no victimization.

Again, while only one personality measure was significant when using the .05 significance level, neuroticism (OR=1.33, p=.09) and extraversion (OR=1.15, p-value=.391) had

large effects. Agreeableness was very close to significance within this model (OR=.74, p-value=.051) and in the same direction as the wave 7 model, meaning the odds of experiencing polyvictimization relative to no victimization or a single type of victimization are 26% lower. Additionally, across both models, it can be seen that the size and direction of effects are similar despite not being significant.

**Table 2.3 Ordered Logistic Regressions Predicting Polyvictimization**

Variables	Wave 7 Poly (N=1,083)			Across Waves Poly (N=1,130)		
	Odds Ratio	CI		Odds Ratio	CI	
Neuroticism	1.12	0.84	1.51	1.33	0.96	1.83
Extraversion	1.11	0.83	1.49	1.15	0.84	1.56
Openness	1.21	0.98	1.48	1.26*	1.02	1.56
Agreeable	0.72*	0.55	0.95	0.74	0.55	1.00
Conscientious	1.14	0.83	1.58	0.84	0.59	1.20
Binge drink	1.07	1.00	1.14	1.06	0.98	1.14
Illicit drugs	0.95	0.82	1.12	0.98	0.81	1.17
Marijuana	1.03	0.99	1.08	1.03	0.98	1.08
Social	1.10	0.99	1.22	1.10	0.98	1.23
Friendship	0.88	0.76	1.02	0.94	0.81	1.09
Warm mom	0.93	0.80	1.08	0.94	0.79	1.10
Hostile mom	1.30	0.99	1.70	1.61**	1.19	2.19
Warm dad	0.98	0.87	1.09	1.00	0.88	1.12
Hostile dad	1.08	0.82	1.43	0.97	0.72	1.30
Age	0.96	0.87	1.06	0.90	0.81	1.00
Sex (1 = Male)	1.14	0.81	1.60	0.71	0.49	1.05
Race/Ethnicity (Black – Ref.)						
Hispanic	0.93	0.67	1.31	1.03	0.71	1.48
White	0.98	0.68	1.42	1.09	0.73	1.64
Other	1.19	0.65	2.19	1.06	0.56	1.98
Site Location (1=Phoenix)	0.37***	0.28	0.51	0.30***	0.96	1.83
<b>AIC</b>	2299.04			2000.185		
<b>BIC</b>	2408.76			2110.84		

\*p<.05, \*\*p<.01, \*\*\*p<.001

## Discussion

Past research has shown a link between certain stable traits, polyvictimization, and victimization more generally (Boccio & Beaver, 2021; Bowling et al., 2010; Cawvey et al., 2018; Daigle & Teasdale, 2018; Flexon et al., 2016; Fontaine et al., 2018; Kerig & Modrowski, 2018; Kulig et al., 2019; Pratt et al., 2014; Tanksley et al., 2021), but research has not examined the Big Five personality traits and their relationship to polyvictimization. The current study fills this gap by analyzing longitudinal data from the Pathways to Desistance study to examine the relationship between specific personality traits (i.e., neuroticism, extraversion, openness, agreeableness, and conscientiousness) and polyvictimization.

As expected, prevalence estimates of victimization and polyvictimization were relatively high among this sample of justice-involved youth. Specifically, within wave 7, about 32% of youth indicated experiencing a single victimization type and about 30% experienced two or more types (i.e., polyvictimization). Prevalence estimates appeared to be higher when examining polyvictimization within and across multiple waves (i.e., 7-10). For example, across waves 7-10, approximately 26% of respondents experienced a single victimization type, and 61% experienced two or more types of victimization. These estimates are similar to past polyvictimization prevalence estimates found in justice-involved samples. Specifically, in their sample of male inmates, approximately 28% of participants had experienced two or more types of victimization (Caravaca-Sánchez & Wolff, 2021). Higher estimates have also been found for justice-involved adults. For example, approximately 95% of males recently released from prison had experienced polyvictimization (Listwan et al., 2014).

In addition to prevalence, another finding is that personality traits are associated with experiencing polyvictimization. Given past research that has specifically examined variations of

stable personality traits and victimization finding that personality traits influence polyvictimization was expected (Boccio & Beaver, 2021; Bowling et al., 2010; Cawvey et al., 2018; Daigle & Teasdale, 2018; Fontaine et al., 2018; Flexon et al., 2016; Kerig & Modrowski, 2018; Kulig et al., 2019; Pratt et al., 2014; Tanskley et al., 2020). For example, Fontaine et al.'s (2018) longitudinal examination of callous-unemotional traits and peer victimization did find that childhood callous-unemotional traits were associated with adolescent physical victimization experiences. Likewise, traits from the Dark Triad (i.e., machiavellianism, narcissism, psychopathy) have been found to significantly predict victimization even when controlling for low self-control (Flexon et al., 2016).

There is much to be gleaned from this general finding. First, if researchers know that there may be stable factors placing an individual at risk for victimization, they can use those factors to develop targeted plans for interventions and programming. Specifically, we know that certain personality traits are associated with varying behaviors. For example, reviews have found neuroticism to be linked with high emotional reactivity and increased susceptibility to stress (Lonsdorf & Merz, 2017), and extraversion has been linked to drinking patterns (Baer, 2002). These are also behaviors that are consistently found to influence victimization risk. Thus, service providers (e.g., probation/parole officers, counselors, victim services) may benefit from having their clients complete a personality inventory and tailoring intervention and counseling efforts toward those individuals' behaviors and characteristics driven by their personality type. It is important to remember that the onus should never be on the victim to prevent victimization, and that someone can take all the protective measures in the world and still experience a victimization incident. However, it is also important to utilize all of the tools that you are given, such as better understanding what your personality type is and what that may mean for how you

interact with the world. In this way, we can move away from blame-oriented categorizations of victims (see Mendelsohn's 1956 victim typology) and toward empowering individuals to exercise precautionary measures when reasonably possible (Schreck, 2021).

In addition to the empirical works finding a relationship between personality traits and polyvictimization, the finding is in line with theoretical expectations. More specifically, theoretical perspectives such as risk heterogeneity, suggest that there may be certain (relatively) stable traits that place individuals at risk for experiencing victimization, and if left unaddressed, these traits will likely continue to place individuals at risk for future victimization experiences (Sparks, 1981). Thus, in accordance with the risk heterogeneity perspective, this study finds that certain personality traits, are indeed, associated with increased and decreased odds for experiencing polyvictimization.

The second major finding is that agreeableness and openness were the traits that significantly predicted experiencing polyvictimization. Agreeableness was associated with a significant reduction and openness was associated with a significant increase in the odds of experiencing polyvictimization relative to a single type of victimization or no victimization. These findings do contradict the study hypothesis. Based on the general victimization literature and characteristics associated with each trait, it was hypothesized that those high in neuroticism and extraversion traits would have the greatest odds of experiencing polyvictimization. The lack of association between neuroticism and extraversion and polyvictimization was unexpected given previous research finding a link. Those studies used samples of people who were not justice involved. It may be that personality traits are associated with different behaviors in justice-involved youth and may be impacted by this context. It is also possible that these personality traits are not indicators of maladaptive behavior; rather, individuals high in

neuroticism or extraversion may be able to navigate their daily life in prosocial ways. For example, someone who is high in neuroticism may worry about things internally but develop non-risky, prosocial ways of managing their worry that does not expose them to polyvictimization. These contradictory findings for personality and the lack of significant findings for many of the other independent and control variables may also be explained by the lag time between the waves used. Specifically, the demographic characteristics and parental warmth/hostility measures were used from baseline, personality and the other independent variables were measured during wave 4, and the polyvictimization measure was created from wave 7 and waves 7-10. Thus, despite personality being a relatively stable trait, there may be few significant findings due to the lag between time periods (e.g., behaviors such as binge drinking in wave 4 may not predict polyvictimization in wave 7). The context surrounding those individuals may also have changed between baseline, wave 4, and waves 7-10, which may be impacting results. For example, someone who was experiencing polyvictimization from a family member who they lived with during baseline may have moved away from those who were harming them by waves 7 through 10. It may also be that during the later developmental periods they quit interacting with peers who may have placed them at risk or desisted from participating in behaviors that may have placed them at greater risk for polyvictimization.

Despite being unexpected, the relationship between polyvictimization and agreeableness and openness may have several explanations and is supported by past research (see Cawvey et al., 2018). For example, agreeableness is often characterized as being trustable, good-natured, cooperative, forgiving, and tolerant (Barrick & Mount, 1991). Similarly, someone high in openness is often said to be imaginative, open-minded, and curious (Barrick & Mount, 1991). It is possible those high in agreeableness may be at lower risk for polyvictimization because they

possess characteristics such as being tolerant, cooperative, and good-natured that allow them to avoid conflict more easily (Cawvey et al., 2018). This finding is in line with Cawvey and colleagues' (2018) work that found agreeableness decreased victimization risk. In this same vein, offenders may, unfortunately, take advantage of someone being open-minded and curious by using this as a way to involve them in dangerous situations or victimize them directly. It may also be that those who are high in openness are also likely to engage in high-risk behaviors (e.g., substance use, risky sex). In accordance with lifestyle/routine activities perspectives, those who engage in risky lifestyle behaviors are more likely to come into contact with motivated offenders and be viewed as a suitable target lacking guardianship (Cohen & Felson, 1979; Hindelang et al., 1978). Cawvey and colleagues' (2018) work also supports this finding because they found that openness increased the chances of experiencing victimization. Researchers should consider and examine the mechanisms by which these personality traits influence experiencing polyvictimization. Additionally, past research has found characteristics relevant to openness (i.e., sensation seeking, impulsivity) to be significantly associated with binge drinking (O'Leary et al., 2019). Research has also shown that victims of domestic violence are fearful and have a greater desire to avoid conflict than non-victims (Pietri & Bonnet, 2017), which is in line with characteristics of agreeableness (e.g., cooperative, forgiving, trusting). It may be that those who are high in agreeableness and experience victimization by a partner are less likely to respond in ways that may escalate situations to multiple forms of victimization.

The identification of these traits (i.e., agreeableness, openness) is pertinent to policy and prevention. As mentioned in the discussion of the first finding, service providers could use personality assessments as a way to explore individualized approaches to preventing victimization. As an example, if a client had a low agreeableness score, service providers could

work with them on techniques to avoid conflict and assist them with developing conflict resolution techniques. Building out this set of skills may be particularly relevant to those experiencing polyvictimization from a former or current partner. For those high in openness, service providers might offer clients advice on how to best take protective measures while exploring the world, or they could offer them short critical thinking exercises to do when presented with an opportunity that they are open to participating in. These critical thinking exercises would allow them to consider the potential benefits and risks associated with participating in a particular situation. The examples presented here are minor modifications to someone's life that may be important to reducing their victimization risk. Despite personality being a relatively stable trait, in accordance with risk heterogeneity perspectives, addressing the underlying factors that may be contributing to victimization risk may reduce future victimization experiences (Sparks, 1981). Thus, it may not be possible to change someone's personality type, but it is possible to give victims the knowledge and the tools to mitigate their risk. Future research may build from this study by exploring whether other relatively stable traits affect polyvictimization risk and by conducting focus groups with victims to gauge whether they would be interested in learning these tools (e.g., critical thinking exercises; assertive actions).

### **Limitations and Future Research**

This study does address an important gap within the literature and has a strength of using longitudinal data; however, there are also limitations. First, the study cannot confirm that participants are reporting victimization that happened within the past year recall period nor can this research establish causality, but it is likely that personality type predates experiencing polyvictimization because personality is relatively stable. The current study also uses measures

of personality from wave 4 and victimization measures from waves 7-10, and the models do include related covariates and controls. Future research should explore these relationships using statistical methods that allow for examination of causality (e.g., propensity score matching). Second, these data cannot establish the exact ways in which personality may shape polyvictimization (e.g., life experiences or thought process about their personality type not captured within the survey) nor can the responses to victimization be ascertained from these data. Thus, it may be especially beneficial to examine these relationships further using qualitative data (e.g., interviews, focus groups). Third, the sample is comprised of primarily male, serious youth offenders, so findings may not be readily applicable to those in the general population. Future research should work to replicate a longitudinal study of this nature within the general population. Fourth, I only used one conceptualization of polyvictimization in the final models within wave 7 and across waves 7-10, but there may be other ways to measure polyvictimization using these data. For example, prior to analysis I explored two other methods to conceptualizing polyvictimization, with the measures included showing the highest fit statistically, theoretically, and methodologically. This approach was taken to examine differences and similarities across the varying polyvictimization measurement strategies, but due to similarities in effects and for brevity, only one strategy was used.

### **Conclusion**

The current study used the longitudinal Pathways to Desistance data to explore the relationship between personality and polyvictimization – measured two ways. During wave 7, about 32% of participants were single type victims and 30% experienced polyvictimization. By contrast, within and across waves 7-10, 26% experienced a single victimization type, 61%

experienced polyvictimization. Findings show that individuals who have certain personality traits have greater and lower odds of experiencing polyvictimization. Agreeableness was associated with a significant decrease in the odds of experiencing polyvictimization, but openness was associated with a significant increase in the odds of experiencing polyvictimization relative to non-victims and single type victims. In light of these findings, it may be beneficial for service providers to implement optional personality assessments and then tailor their efforts for prevention and intervention programming/sessions based on an individual's results. These targeted approaches may have a greater impact on addressing relatively stable factors that are placing individuals at risk for victimization.

## **CHAPTER IV: POLYVICTIMIZATION AND ITS EFFECTS ON ACADEMIC PERFORMANCE: FINDINGS FROM A NATIONAL-LEVEL STUDY OF COLLEGE STUDENTS**

### **Introduction**

Polyvictimization is used to describe instances in which individuals experience multiple types of victimization (e.g., sexual, neglect, violent) (Finkelhor, Ormrod, & Turner, 2007; Finkelhor, Ormrod, Turner, & Hamby, 2005). Despite its seemingly broad utility, most work examining polyvictimization has focused on children and/or adolescents (Finkelhor et al., 2007, 2009; Finkelhor et al., 2005; Ford, Elhai, Connor, & Frueh, 2010; Haahr-Pedersen et al., 2020; O’Dea et al., 2020; Turner, Finkelhor, & Ormrod, 2010; Turner, Shattuck, Finkelhor, & Hamby, 2017) or the effects of childhood polyvictimization on adulthood outcomes (Elliot et al., 2009; Rapsey, Scott, & Patterson, 2019; Richmond et al., 2009) rather than the effects of polyvictimization during adulthood on adulthood outcomes.

Although several studies demonstrate the links between polyvictimization during childhood and negative factors, additional research is needed to explore polyvictimization among college students, particularly on how it may be related to negative outcomes. Existing work indicates that those who experience polyvictimization fare worse (e.g., academic performance, college adjustment, psychopathology, substance use) than those who experience a single-type of victimization (Banyard et al., 2020; Elliot et al., 2009; Finkelhor et al., 2007; Ford et al., 2010; Haahr-Pedersen et al., 2020; Rapsey et al., 2019; Richmond et al., 2009; Sabina & Straus, 2008; Turner et al., 2010). Some research has documented polyvictimization’s connection to negative outcomes for college students. For example, Sabina and Straus (2008) found that polyvictimization was the strongest predictor of posttraumatic stress symptoms among male and female college students. Similarly, Banyard et al. (2020) found that college students who experienced four different types of victimization (i.e., stalking, intimate partner violence,

unwanted sexual contact, and unwanted sexual intercourse) had more negative academic outcomes than non-victims and victims who experienced one, two, and three types of victimization. Banyard et al. (2020) examined academic efficacy, collegiate stress, institutional commitment, and scholastic conscientiousness to assess academic performance. However, what we do not know is how polyvictims may differ in other ways academically. For example, is GPA related to polyvictimization? Do polyvictims view their academic performance as being affected by other factors, and, if so, what factors do they think harm their academic performance? These are important questions because if polyvictimization affects students' academic performance in negative ways, it may ultimately hinder their academic progress and the opportunities presented to them in the future. The current study seeks to fill this gap by examining polyvictimization among a national sample of college students and how it relates to academic performance.

## **Literature Review**

### **Polyvictimization and Academic Performance**

Although some research on the prevalence of polyvictimization among college students exists, there is a limited number of studies examining outcomes of polyvictimization. Most of these studies explore polyvictimization without a theoretical framework, but polyvictimization can be viewed through a trauma exposure lens. More specifically, meta-analyses have shown that individuals who experience victimization (i.e., a form of trauma) often report increased symptoms of psychopathology, especially suicidality and PTSD (see Dworkin, DeCou, & Fitzpatrick, 2020; Dworkin, Menon, Bystrynski, & Allen, 2017). These symptoms may then negatively impact individuals' daily activities, such as their career or academic functioning. For

example, research has shown a link between mental health issues and negative impacts on academic performance (Wilks et al., 2020; Wyatt, Oswald, & Ochoa, 2017). In addition to trauma exposure, stress sensitization models may be particularly relevant for understanding why those who experience polyvictimization may be more distressed than those who only experience one form of victimization. Specifically, these models suggest that past exposure to trauma sensitizes people to respond more intensely to stressors at later timepoints (Hammen, Henry, & Daley, 2000). Thus, traumatic victimization may lead to stress, which is then further activated in the face of additional victimizations, which may lead to academic performance issues.

Much of the polyvictimization literature has linked polyvictimization in childhood or adolescence to negative mental health outcomes such as experiencing trauma symptoms (Finkelhor et al., 2007), psychological distress (Turner et al., 2017), depression, PTSD, substance use disorders (Ford et al., 2010), and internalizing disorders (Rapsey et al., 2019). Others have examined the long-term effects of childhood polyvictimization on mental health outcomes in college women (Edwards et al., 2014; Elliot et al., 2009; Richmond et al., 2009) and found that polyvictims have worse college adjustment and psychological distress (Elliot et al., 2009; Richmond et al., 2009). Specifically, Elliot and colleagues (2009) found that experiencing polyvictimization during childhood accounted for the most significant variation in college adjustment scores relative to any of the other single victimization categories (i.e., property crime, physical assault, child maltreatment, peer and sibling victimization, witnessing/indirect victimization, sexual victimization). Additionally, Richmond et al. (2009) found that polyvictimization accounts for the most significant variation in psychological distress, beyond what was accounted for by any single victimization.

Other research has examined the effects of experiencing childhood polyvictimization on academic performance. For example, Welsh, Peterson, and Jameson (2014) examined the impact that childhood maltreatment (i.e., physical, sexual, emotional abuse, neglect) has on academic outcomes. They found that college students who had experienced more types of childhood maltreatment had lower GPAs and reported worse college adaptation scores (Welsh et al., 2014).

Some research shows that polyvictimization experienced during college is also linked to poor academic performance. Banyard et al. (2020) found that as the number of victimization types experienced increased, the more negative academic outcomes (academic efficacy, collegiate stress, institutional commitment, scholastic conscientiousness) college students exhibited also increased. As an example, students who experienced a stalking victimization, intimate partner violence victimization, unwanted sexual contact, and unwanted sexual intercourse fared worse on all types of academic related outcomes compared to those in the other categories (Banyard et al., 2020). Whether polyvictimization among college students has an effect on GPA, is not known. In addition, the specific ways that academic performance is negatively impacted is less evident. That is, researchers have not explored whether polyvictimization predicts students' mental health-related, physical health-related, and substance use-related academic performance. Thus, it is unclear whether polyvictimization is related to self-reported GPA and other academic performance measures. Also, little is known about what factors may be impacting these relationships.

## **Current Study**

As noted, although some research exists, there remains questions about polyvictimization among college students and how victimization shapes their college lives. The literature lacks research focusing on the relationship between polyvictimization that occurs among college students and academic performance and how specifically, academic performance is impacted. Thus, the current study intends to fill this gap by exploring if polyvictims have worse academic performance through self-reported GPA and also how polyvictims differ on mental health-related, physical health-related, and substance use-related academic performance using a national sample of college students.

## **Methods**

### **Data and Sample**

Data were drawn from the Spring 2019 collection of the American College Health Association's National College Health Assessment II (ACHA-NCHA II). The ACHA-NCHA II includes colleges across the United States, with schools self-selecting to take part in the survey. Survey administration occurs during both the Fall and Spring semesters. Only institutions that sampled all students or used a random sampling technique were included in the data (See ACHA, 2019 for additional information about the sample). The ACHA-NCHA II is an appropriate data source for this study because it includes measures to assess student academic performance, health behaviors, and health-related experiences.

Within the Spring 2019 data, 98 institutions participated, resulting in 67,972 student participants. Most institutions (90) utilized a web survey, but paper surveys were also used. This sample includes both public and private, as well as two and four-year colleges, and colleges that

range in enrollment size (i.e., less than 2,500 to over 20,000). The analytical sample included 61,986 students after listwise deletion. Due to this being such a large sample with less than 4% missing on any one variable, we performed a complete case analysis, instead of using other approaches to missing data.<sup>3</sup>

Sample characteristics are presented in Table 3.1. The majority of students were White (56%), 15% were Hispanic, 15% were Asian, 10% were another race/ethnicity, and about 4% were Black. Most of the students were female (69%) and about 19% indicated being LBGQTQ+ . Additionally, approximately half of students (49%) worked part-time. The majority (91%) were enrolled full-time, and the average age was about 23. Approximately 6% of students indicated using illicit drugs within the past 30 days, about 23% reported marijuana use in the past 30 days, and about one-third had participated in binge drinking within the past two weeks. Importantly, about 13% of students experienced a single victimization type, 3% experienced two types, and about 1% experienced three types. Most of the sample had A (49%) or B (41%) GPAs. Lastly, about 35% experienced mental health-related academic performance issues, 21% experienced physical health-related academic performance issues, and 4% experienced substance use-related academic performance issues.

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<sup>3</sup> Allison (2014) noted that listwise deletion is robust under the ‘not missing at random assumption’ and is strong for logistic regression. Given this, our large sample size, and relatively little missing data, we use a complete case analysis.

**Table 3.1 Sample Characteristics**

	% (n)	N
<b>Dependent Variables</b>		
Grade Point Average (GPA)		65,453
A	49.06 (32,114)	
B	41.02 (26,848)	
C	9.23 (6,039)	
D/F	0.69 (452)	
Academic Performance – Mental (1=yes)	34.70 (23,182)	66,800
Academic Performance – Physical (1=yes)	20.92 (13,969)	66,767
Academic Performance – Substance (1=yes)	4.12 (2,749)	66,757
<b>Independent Variables</b>		
Polyvictimization (1=yes)	3.37 (2,275)	67,550
Polyvictimization Count		67,550
0 types	84.06 (56,782)	
1 type	12.57 (8,493)	
2 types	2.79 (1,882)	
3 types	0.58 (393)	
<b>Related to Academic Performance and Polyvictimization</b>		
Enrolment Status		67,038
Full-time	90.89 (60,934)	
Part-time	9.11 (6,104)	
Weekly Work		66,727
0 Hours	38.24 (25,519)	
Part-time	48.70 (32,497)	
Full-time	13.05 (8,711)	
Binge Drinking (1=yes)	26.08 (17,729)	67,972
Illicit Drug Use (1=yes)	5.52 (3,671)	66,524
Marijuana Use (1=yes)	22.61 (15,370)	67,972
<b>Demographic Variables</b>		
LGBTQ+ (1=yes)	19.42 (12,883)	66,332
Birth Sex		66,981
Female	69.06 (46,260)	
Male	30.94 (20,721)	
Age: $\bar{x}$ (s)	22.54 (6.09)	66,435
Race/Ethnicity		67,972
White	56.42 (38,348)	
Black	3.93 (2,672)	
Hispanic	14.83 (10,078)	
Asian	14.70 (9,994)	
Other	10.12 (6,880)	

## Measures

### *Dependent Variables*

*GPA.* Grade point average was assessed by asking students their approximate cumulative grade point average. The ordinal measure reflects grade point averages of A (coded as 1), B (coded as 2), C (coded as 3) and D/F (coded as 4). Those who indicated having no established institutional GPA (n=1,356) were coded as missing for these analyses. Past research has found an

association between experiencing multiple victimization types during childhood and decreased GPA during adulthood (Elliot et al., 2009; Welsh et al., 2014). Thus, it is likely that polyvictimization during adulthood will also negatively impact college GPA.

*Academic Performance - Mental Health.* Academic performance related to mental health was also assessed. Students were asked if any of the following had affected their academic performance within the last 12 months: anxiety, ADHD, depression, eating disorder, learning disability. Original response categories for all academic performance measures were (1) This did not happen to me/not applicable, (2) I have experienced this issue, but my academics have not been affected, (3) Received a lower grade on an exam or important project, (4) Received a lower grade in the course, (5) Received an incomplete or dropped the course, (6) Significant disruption in thesis, dissertation, research, or practicum work. A dichotomous indicator was created that reflects if a student indicated any of these mental health issues influenced their academic performance (response options 3-6 coded as 1) and coded as 0 otherwise. Those who experienced the listed issue but indicated that their academic performance was not affected were also coded as 0. Past research has also used mental health-related academic performance measures from the ACHA-NCHA (Klein & Dudley, 2014; Oswalt & Wyatt, 2011; Wyatt, Oswalt, & Ochoa, 2017).

*Academic Performance – Physical Health.* Another measure of academic performance assesses how physical health influenced academic performance. Physical health-related academic performance ACHA-NCHA measures have been used in prior research (Klein & Dudley, 2014; Miller, Fridline, & Bernert, 2017). Students were asked if any of the following had affected their academic performance within the last 12 months: cold/flu/sore throat, chronic health problem or serious illness, chronic pain, injury, pregnancy, STD, and/or sinus infection. Original response

categories were the same as those for mental health-related academic performance. Those who indicated experiencing any of these physical health measures that affected their academic performance were coded as 1 (original categories 3-6) and those who experienced none or none that affected their academic performance were coded as 0.

*Academic Performance – Substance Use.* Academic performance as it relates to substance use was also examined. The students were asked if any of the following had affected their academic performance within the last 12 months: alcohol use or drug use. Original response categories were the same as those for mental health-related academic performance. Alcohol use and drug use items were then recoded into dichotomous variables (0 – this did not happen or experienced but academic performance not affected (original 3-6); 1 – affected academic performance in some way). Those who indicated experiencing either of the individual items were coded as a 1 and those who experienced none or none that affected their academic performance were coded as a 0. The items used for the substance use-related academic performance have also been used within the literature using ACHA-NCHA data (Klein & Dudley, 2014).

### ***Independent Variables***

*Polyvictimization.* To establish measures comparable to past polyvictimization and academic performance studies (Banyard et al., 2020) and explore variation in types experienced, two different polyvictimization measures were constructed. Three types of victimization were used to determine if a person was a polyvictim—violent victimization, sexual victimization, and stalking within the last 12 months. The violent victimization measure was a single item asking students "were you physically assaulted (do not include sexual assault)?" The sexual victimization measure included four different, specific items/questions asking participants if they

had experienced(a) sexual touching without consent, (b) sexual penetration (vaginal, anal, oral) attempt without consent, (c) sexual penetration (vaginal, anal, oral) without consent, and (d)while drinking alcohol, sex without consent). These items were summed and dichotomized into experienced any sexual victimization (1=yes; 0=no). Finally, the stalking measure was derived from one item that asked participants if they “were a victim of stalking (e.g., waiting for you outside your classroom, residence, or office; repeated emails/phone calls)?” A dichotomous indicator was constructed where those persons experiencing none or only one of these types of victimization were coded as 0 and those experiencing more than one type were coded as 1. The measure of stalking, sometimes viewed as a form of coercive control, was included due to stalking also being conceptualized as a form of victimization in past research (Daigle et al., 2021; Daigle et al., 2020). Additionally, researchers have found that experiencing coercive control is often linked to also reporting severe negative effects, and sometimes these impacts are even greater than those felt by “traditional” (e.g., rape) victimization types (Hayes & Kopp, 2020; Sackett & Saunders, 1999; Stark, 2007). A second indicator of polyvictimization reflects the number of different types of victimization experienced, ranging from 0 to 3. For both variables, polyvictimization was defined as experiencing two or more types of victimization.

*Binge Drinking.* Research has shown an association between binge drinking and decreased GPA (Piazza-Gardner, Barry, & Merianos, 2016), and past victimization research using NCHA data has also used this measure (Daigle et al., 2020; Johnson, Daigle, & Napper, 2017). Thus, a measure to assess binge drinking was included in the current models predicting polyvictimization. Respondents were prompted to recall, within the past two weeks, how many times they drank five or more drinks in one sitting. Those who indicated binge drinking at least once were coded as 1, and those who did not report binge drinking were coded as 0.

*Illicit Drug Use.* Illicit drug use has been linked to a higher likelihood of taking a hiatus or transferring to another school (Arria et al., 2013). As such, a measure of illicit drug use was created by combining multiple questions asking students if they had used any of the following in the past 30 days: cocaine, methamphetamine, other amphetamines, sedatives, hallucinogens, anabolic steroids, opiates, inhalants, MDMA, other club drugs, and/or other illegal drugs. All drug items original answer categories were (1) never used, (2) have used, but not in last 30 days, (3) 1-2 days, (4) 3-5 days, (5) 6-9 days, (6) 10-19 days, (7) 20-29 days, (8) used daily. Those who indicated using any of these within the last 30 days were coded as 1 and 0 otherwise.

*Marijuana Use.* A measure of marijuana use was included separately due to wide acceptance and legalization (Drug Policy Alliance, 2021; Green, 2021). Students were asked if they had used marijuana within the past 30 days – used in last 30 days coded as (1) and 0 otherwise. Similar drug use measures from the ACHA-NCHA have been used in past research (Alley, Kerr, & Bae, 2020; Kerr, Ding, Burke, & Ott-Walter, 2015; Forster, Grigsby, Rogers, & Benjamin, 2018). The ACHA (2013) conducted a reliability and validity analyses of the NCHA-ACHA II using various methods (i.e., principal components analysis, reliability analysis, comparisons to other nationally representative data, construct and measurement validity). They concluded that the ACHA-NCHA II is a reliable and valid instrument (ACHA, 2013).

## **Control Variables**

*Enrollment Status.* College students are typically classified as part-time or full-time students. Level of time and intellectual commitment associated with this status may affect their academic performance (Boumi & Vela, 2020). Enrollment was measured as an indicator of being full-time (coded as 1), and those who indicated being part-time or other were coded as 0.

*Weekly Work.* College students often work while going to school. Past research has shown students who work more than 11 hours per week have lower GPAs than other students (Tessema et al., 2014). Thus, weekly work was created from asking students how many hours per week they work for pay. The measure was coded so those who worked no hours were referent (0), part-time<sup>4</sup> (1), and full-time (2).

*LGBTQ+ Status.* Research has shown members of the LGBTQ+ community experience high victimization risk (Griner et al., 2020), and trouble adjusting to life on campus (Amodeo et al., 2020; Garvey & Rankin, 2015), which may affect how they perform academically. An LGBTQ+ measure was created from two items – gender identity and sexual orientation. The measure reflects if students indicated being asexual, bisexual, gay, lesbian, pansexual, queer, questioning, same gender loving, trans woman, trans man, genderqueer, or another identity (coded as 1) and coded as 0 if not. Thus, students could identify with the category that best described them.

*Birth Sex.* Past research has identified birth sex as having a significant relationship to victimization (Daigle et al., 2021). Thus, a measure for birth sex was included. Students were asked what sex they were assigned at birth, and it was coded so that female (0) and males (1).

*Age.* A measure for *age* in years was also included due to past research finding that younger students had increased risk for polyvictimization (Snyder et al., 2021).

*Race/Ethnicity.* A measure for race/ethnicity was included because research often finds that racially and ethnically diverse persons experience heightened victimization risk (Coulter et al., 2017; Johnson et al., 2017; Tillyer & Tillyer, 2016), and members of racially and ethnically diverse groups have been found to experience negative impacts to academic performance due to

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<sup>4</sup> Part-time workers are those who work less than 30 hours on average per week, as defined by the IRS.

discrimination (Stevens et al., 2018). Students were asked how they usually describe themselves, and responses were recoded so that (1) White (referent), (2) Black, (3) Hispanic or Latino/a, (4) Asian or Pacific Islander, (5) Other. Other race/ethnicity includes those who indicated being American Indian, Alaskan Native, Native Hawaiian, Biracial or Multiracial, and Other.

### **Analytic Plan**

Our analysis proceeded in several steps. First, we performed correlations based on the level of measurement for each variable. (i.e., 11 point biserial – continuous/nominal; 33 rank biserial – ordinal/nominal; 45 phi coefficients – nominal/nominal; 6 Kendall’s tau b – continuous/ordinal and ordinal/ordinal for less than 5 categories; 10 Cramer’s V – nominal/nominal for non-matching category counts) (see Akoglu, 2018; Khamis, 2008 for further discussion regarding appropriate measures of association). A correlation matrix of the results can be found in Appendix A. Second, we examine if polyvictims have lower GPAs than non-polyvictims and whether a greater number of victimization types is related to lower GPA. To do so, we generated two multivariate generalized ordinal regression models to examine how polyvictimization influences GPA because these models can assess dependent variables with ordered multiple categories (i.e., A, B, C, D/F). Next, we examine the relationship between mental health-related academic performance and polyvictimization. Specifically, multivariate logistic regression is used to examine if polyvictimization influences mental health-related academic performance. This same strategy is used to examine polyvictimization and physical health-related academic performance and polyvictimization and substance use-related academic performance. We use multivariate logistic regression to account for the dichotomous academic performance dependent variables. All models account for covariates and control (i.e., LGBTQ+),

birth sex, race/ethnicity, age) variables shown to be related to academic performance and polyvictimization. Models predicting substance use-related academic performance excluded binge drinking, illicit drug use, and marijuana use as covariates.

## Results

First, as demonstrated in Appendix A, all of the included covariates are significantly related to at least one of the academic performance outcome variables and polyvictimization was significantly correlated with each academic performance outcome variable. In Table 3.2, the results of the analysis examining the relationship between GPA, and polyvictimization are presented using multivariate generalized ordinal regression via the `gologit2` command in Stata 16. These models relax the parallel odds assumption and, when using the `autofit` option, produce a model in which the partial odds model is estimated (Williams, 2005). The final model chi-square test shows that this model does not violate the parallel odds assumption. The odds ratios can be interpreted for the first panel (A) as the odds of being in the B,C, D/F group, relative to the A group. As shown, polyvictims have higher odds of having an overall GPA of B, C, or D/F relative to A compared to non-polyvictims<sup>5</sup>. Similarly, the odds of having a C, D/F rather than an A or B are higher for polyvictims than non-polyvictims and the odds of having a D/F relative to an A, B, or C are higher for polyvictims compared to non-polyvictims. As shown in Model 2 in Table 3.2, as the number of types of victimization experienced increases, the odds of having a GPA other than A also increase. For example, in the A panel which reflects a model comparing

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<sup>5</sup> Based on the coding of the polyvictimization dichotomous variable, when we use the term non-polyvictim we are referring to both those who experienced a single victimization type and those who did not experience any victimization types (i.e., non-polyvictims).

the odds of having an A GPA relative to a B, C, or D/F, the odds of having a B, C, or D/F increase as the number of types of victimization increases.

**Table 3.2 Generalized Ordinal Logistic Regressions Evaluating GPA**

<b>Model 1 (N=62,286)</b>	A vs. B, C, D/F			A, B vs C, D/F			A, B, or C vs D/F		
	Odds Ratio	(CI)		Odds Ratio	(CI)		Odds Ratio	(CI)	
Polyvictim <sup>6</sup> (1=yes)	1.53***	1.39	1.68	1.53***	1.35	1.74	2.22***	1.55	3.17
Enrollment (1=full)	0.55***	0.52	0.59	0.49***	0.44	0.53	0.33***	0.25	0.43
Weekly Work (0 hours = referent)									
Part-time	0.83***	0.80	0.86	0.85***	0.80	0.90	0.64***	0.51	0.79
Full-time	0.83***	0.79	0.88	1.11*	1.02	1.22	1.02	0.75	1.40
Binge Drinking (1=yes)	1.26***	1.21	1.31	1.05	0.99	1.13	0.95	0.75	1.20
Illicit Drug Use (1=yes)	1.33***	1.23	1.43	1.41***	1.27	1.57	1.07	0.72	1.59
Marijuana Use (1=yes)	1.26***	1.21	1.32	1.30***	1.22	1.39	1.43**	1.14	1.80
LGBTQ+ (1=yes)	0.94**	0.90	0.98	1.17***	1.10	1.25	1.58***	1.27	1.97
Birth Sex (1=Male)	1.15***	1.11	1.19	1.27***	1.20	1.34	1.25*	1.02	1.55
Age	0.95***	0.95	0.96	0.95***	0.95	0.96	0.91***	0.88	0.94
Race/Ethnicity (White = referent)									
Black	2.90***	2.65	3.17	3.37***	3.02	3.77	4.95***	3.57	6.88
Hispanic	2.77***	2.64	2.92	3.15***	2.95	3.37	2.59***	2.02	3.32
Asian	1.16***	1.11	1.22	1.29***	1.19	1.41	1.38*	1.01	1.89
Other	1.49***	1.40	1.58	1.66***	1.51	1.83	1.78**	1.27	2.49
Intercept	3.73	3.34	4.17	0.35	0.29	0.42	0.08	0.04	0.18
Log likelihood	-57488.406								
Pseudo R2	0.0426								
<b>Model 2 (N=62,286)</b>									
Polyvictim (0=referent)									
1 type	1.21***	1.15	1.27	1.20***	1.11	1.30	1.38*	1.05	1.80
2 types	1.55***	1.40	1.71	1.56***	1.36	1.80	2.31***	1.54	3.46
3 types	1.80***	1.43	2.26	1.73***	1.30	2.30	2.71**	1.32	5.55
Enrollment (1=full)	0.55***	0.52	0.59	0.48***	0.44	0.53	0.33***	0.25	0.43
Weekly Work (0 hours = referent)									
Part-time	0.83***	0.80	0.86	0.85***	0.80	0.90	0.63***	0.51	0.79
Full-time	0.83***	0.78	0.88	1.11*	1.01	1.21	1.01	0.74	1.38
Binge Drinking (1=yes)	1.25***	1.20	1.30	1.04	0.98	1.11	0.93	0.73	1.18
Illicit Drug Use (1=yes)	1.31***	1.21	1.41	1.39***	1.25	1.54	1.03	0.69	1.53
Marijuana Use (1=yes)	1.25***	1.20	1.30	1.29***	1.20	1.38	1.41**	1.12	1.77
LGBTQ+ (1=yes)	0.93**	0.89	0.97	1.16***	1.09	1.24	1.55***	1.25	1.93
Birth Sex (1=Male)	1.17***	1.13	1.21	1.29***	1.21	1.36	1.29*	1.04	1.59
Age	0.95***	0.95	0.96	0.95***	0.95	0.96	0.91***	0.88	0.94
Race/Ethnicity (White =referent)									
Black	2.90***	2.65	3.17	3.37***	3.02	3.77	4.96***	3.57	6.89

<sup>6</sup> Coded so that those who experienced no or one victimization were 0 and two or more victimizations (1).

Hispanic	2.78***	2.64	2.92	3.16***	2.95	3.38	2.61***	2.04	3.35
Asian	1.17***	1.12	1.23	1.30***	1.19	1.42	1.39*	1.02	1.90
Other	1.48***	1.40	1.57	1.65***	1.50	1.82	1.77***	1.26	2.49
Intercept	3.61	3.23	4.03	0.33	0.28	0.40	0.08	0.04	0.17
Log likelihood	-57456.168								
Pseudo R2	0.0432								

\*p<.05, \*\*p<.01, \*\*\*p<.001

In column 1 of Table 3.3, the results from multivariate logistic regression models examining the relationship between polyvictimization and mental health-related academic performance are shown. Column 1 in Model 1 presents how polyvictims compare to non-polyvictims on mental health-related academic performance. As shown, the odds of indicating having academic performance issues connected to mental health issues are higher for polyvictims as compared to non-polyvictims. In fact, polyvictims have odds 169% higher of having mental health-related academic performance issues than non-polyvictims. In column 1 in Model 2, the number of different types of victimization are examined. As the number of types of victimization increase, the odds of having mental health-related academic performance issues increase. Those who experience one type of victimization face odds that are 102% higher than non-victims, those who experience two types have 210% greater odds, and those who experience three types have odds 189% higher of having mental health-related academic performance issues.

In column 2 of Table 3.3, the results from multivariate logistic regression models examining physical health-related academic performance are presented. The results show a similar pattern as those examining mental health-related academic performance. In Model 1, the odds of experiencing physical health-related academic problems for polyvictims are 140% higher than non-polyvictims. As shown in Model 2, as the number of different types of victimization experienced increases, so do the odds of having physical health-related academic performance

issues. Those who experienced three types of polyvictimization had odds of having a physical health-related academic performance issue that are 218% higher than those of non-victims.

In column 3 of Table 3.3, the multivariate logistic regression models examining substance use-related academic performance are presented. Model 1 shows comparisons between polyvictims and non-polyvictims. Specifically, polyvictims have odds that are 261% higher of having substance use-related academic performance issues. Model 2 shows the results of exploring the number of types of victimization and its relationship to substance use-related academic performance. As with the other models, as the number of types of victimization experienced increases, the odds of having substance use-related academic performance issues increases. Those who experience three types have odds that are 530% greater for this outcome than those who experience no victimization.

**Table 3.3 Logistic Regressions Evaluating Academic Performance**

	Mental Health Effects (N=63,375)			Physical Health Effects (N=63,377)			Substance Use Effects (N=64,444)		
	Odds Ratio	(CI)		Odds Ratio	(CI)		Odds Ratio	(CI)	
<b>Model 1</b>									
Polyvictim <sup>7</sup> (1=yes)	2.69***	2.45	2.96	2.40***	2.19	2.63	3.61***	3.15	4.13
Enrollment (1=full)	1.07*	1.00	1.15	1.05	0.97	1.14	1.02	0.87	1.19
Weekly Work (0 hours = referent)									
Part-time	1.02	0.99	1.06	1.01	0.97	1.05	1.14**	1.05	1.24
Full-time	0.97	0.91	1.03	0.95	0.88	1.02	1.10	0.95	1.26
Binge Drinking (1=yes)	1.04*	1.00	1.09	1.21***	1.15	1.26	-- <sup>8</sup>	--	--
Illicit Drug Use (1=yes)	1.89***	1.75	2.03	1.58***	1.46	1.71	--	--	--
Marijuana Use (1=yes)	1.49***	1.42	1.55	1.32***	1.26	1.39	--	--	--
LGBTQ+ (1=yes)	2.01***	1.93	2.10	1.28***	1.22	1.34	1.57***	1.44	1.71
Birth Sex (1=Male)	0.66***	0.64	0.69	0.59***	0.57	0.62	1.78***	1.64	1.93
Age	0.99***	0.98	0.99	0.99**	0.99	1.00	0.97***	0.96	0.98
Race/Ethnicity (White = referent)									
Black	0.81***	0.74	0.89	0.71***	0.64	0.80	0.71**	0.57	0.90
Hispanic	1.04	0.99	1.09	0.91**	0.86	0.96	0.93	0.83	1.04

<sup>7</sup> Coded so that those who experienced no or one victimization were 0 and two or more victimizations (1).

<sup>8</sup> Substance use variables were omitted from models examining substance use-related academic performance.

Asian	0.78***	0.75	0.83	0.82***	0.77	0.87	0.72***	0.64	0.82
Other	1.19***	1.12	1.27	1.19***	1.12	1.28	0.90	0.79	1.04
Intercept	0.57	0.51	0.64	0.27	0.24	0.31	0.06	0.05	0.08
Log likelihood	-38930.054			-31542.125			10701.709		
Pseudo R2	0.0494			0.0306			0.0286		
<b>Model 2</b>	(N=63,375)			(N=63,377)			(N=64,444)		
Polyvictim (0=referent)									
1 type	2.02***	1.92	2.12	2.00***	1.89	2.11	3.23***	2.94	3.54
2 types	3.10***	2.80	3.44	2.72***	2.47	3.01	4.55***	3.89	5.31
3 types	2.89***	2.32	3.62	3.18***	2.57	3.93	6.30***	4.73	8.39
Enrollment (1=full)	1.06	1.00	1.14	1.04	0.97	1.13	1.00	0.85	1.17
Weekly Work (0 hours = referent)									
Part-time	1.02	0.98	1.06	1.00	0.96	1.04	1.12**	1.03	1.22
Full-time	0.95	0.89	1.01	0.93*	0.87	1.00	1.06	0.92	1.22
Binge Drinking (1=yes)	1.00	0.96	1.04	1.15***	1.10	1.21	--	--	--
Illicit Drug Use (1=yes)	1.78***	1.65	1.92	1.48***	1.37	1.60	--	--	--
Marijuana Use (1=yes)	1.43***	1.37	1.49	1.27***	1.21	1.33	--	--	--
LGBTQ+ (1=yes)	1.94***	1.86	2.02	1.22***	1.16	1.28	1.41***	1.28	1.54
Birth Sex (1=Male)	0.71***	0.68	0.73	0.63***	0.60	0.66	2.03***	1.87	2.20
Age	0.99***	0.98	0.99	1.00	0.99	1.00	0.98***	0.96	0.98
Race/Ethnicity (White = referent)									
Black	0.81***	0.74	0.89	0.71***	0.64	0.80	0.71**	0.56	0.90
Hispanic	1.05	1.00	1.10	0.92**	0.86	0.97	0.95	0.84	1.06
Asian	0.80***	0.76	0.84	0.84***	0.79	0.89	0.77***	0.68	0.87
Other	1.18***	1.11	1.25	1.17***	1.10	1.26	0.87	0.76	1.00
Intercept	0.50	0.45	0.56	0.23	0.21	0.27	0.04	0.03	0.05
Log likelihood	-38551.025			-31230.306			-10441.104		
Pseudo R2	0.0587			0.0402			0.0523		

\*p<.05, \*\*p<.01, \*\*\*p<.001

## Discussion

Much research has documented the negative outcomes faced by polyvictims, but only a handful of studies have examined how polyvictimization shapes academic performance for college students. Our study adds to this existing literature by examining self-reported GPA – along with measures of academic performance that are tied to specific reasons that academic performance is harmed. In this way, our study contributes five main findings, centered on not just if academic performance is related to polyvictimization, but also what the reasons for poor academic performance may be.

First, we demonstrate that about 4% of college students experienced polyvictimization. We note that approximately 3% experienced two types and about 1% experienced three types of polyvictimization. These findings are slightly similar to other estimates produced using college samples (Banyard et al., 2020; Wood et al., 2020). We should point out that our measure of polyvictimization – includes experiencing two or more types of the following forms of victimization: sexual victimization, stalking, and/or violent victimization, and the initial questions use a 12-month recall period. Thus, our findings should be compared to studies with similar measurement strategies. However, polyvictimization has been defined numerous different ways in similar studies, which may account for some of the variation in estimates. In addition, our findings demonstrate that, even within a relatively short time span, that some college students have experienced more than one victimization type. Effective interventions post an initial victimization may serve to reduce subsequent victimization types from occurring.

Second, we find that polyvictimization is related to lower GPA in our sample of college students. Previous research has not connected polyvictimization during adulthood to college GPA in this manner, but our findings are consistent with Welsh and colleagues' (2014) finding that increased scores on childhood maltreatment measures were related to poorer GPA performance.

Third, our findings show that the odds of having mental health-related academic performance issues are higher for polyvictims than non-polyvictims, which is consistent with past literature connecting polyvictimization to mental health issues. Additionally, as the number of victimization types experienced increases, so do the odds of having mental health-related academic performance issues. Previous research has connected polyvictimization to increased psychological distress (Richmond et al., 2009), psychological symptoms, (Ross et al., 2019) and

depression (Sabina & Straus, 2008), but little has been done in terms of connecting these issues to academic performance. However, our findings demonstrate a link between polyvictimization and mental health-related academic performance issues.

Fourth, we find that the odds of having physical health-related academic performance issues are also higher for polyvictims when compared to non-polyvictims. Moreover, as the number of victimization types experienced grows, so do the odds of having physical health issues that affected academic performance. Researchers have documented a link between victimization and physical health (see López-Martínez et al., 2018; Riedl et al., 2019; Witte et al., 2015). It may be that students view their academic performance as being affected because they are unable to complete school related tasks while they are having health complications that are tied to polyvictimization. Moreover, polyvictimization is a form of trauma that can heighten physical symptomology, which may then harm academic performance.

Fifth, our findings show that polyvictims also have higher odds of having substance use-related academic performance issues compared to their non-polyvictim peers. Additionally, students who experienced three types of victimization had the highest odds of having substance use-related academic performance issues relative to non-polyvictims. Our findings are important because they demonstrate that accumulation of victimization types is associated with the greatest impact on substance use-related academic performance. Thus, intervening after a single-type victimization in ways to prevent additional victimization types may be particularly impactful in reducing harm. It is also instructive that, if students perceive their substance use as impacting their academic performance, these same factors are also likely affecting their daily lives more generally. Universities should work to provide students with resources and services to target substance use and its attending problems.

Even when accounting for polyvictimization, our findings show that a link exists between several other factors and academic performance. Specifically, race/ethnicity, substance use (i.e., marijuana use, illicit drug use, binge drinking), birth sex, age, and being LGBTQ+ are the most consistent factors associated with academic performance. Of interest, in the models examining GPA, males have higher odds of reporting GPAs other than A's compared to females, but this relationship changes for the models examining mental health-and-physical-health related academic performance. Specifically, in the models examining academic performance issues related to problems with physical or mental health, females had higher odds of indicating having physical or mental health problems impact their academic performance than males. Past research has found that females hold more favorable intentions to seek and attitudes toward seeking professional help (Mackenzie et al., 2006; Nam et al., 2010). Thus, it may be that males are willing to indicate their progress on a more objective measure such as GPA rather than report that they are having problems with their physical or mental health. Females may be more attuned to their feelings and struggles than their male counterparts, and as a result, they may be better able to directly identify that their physical or mental health problems are affecting their academic performance. The relationship between substance use and physical- and mental-health-related academic performance suggests that universities should include in their violence prevention curricula information about substance use and how it may impact academic performance as well as its impacts on physical and mental health.

Additionally, finding that many of the control variables had an impact on academic performance may highlight a need for universities to pay greater attention to demographic factors when making outreach efforts related to academic performance. For example, being LGBTQ+ was consistently associated with having academic performance issues. This relationship may

emphasize a need for tailored outreach efforts or that LGBTQ+ students may be experiencing underlying factors that are affecting their academic performance. In light of these findings, it may be beneficial for administrators (e.g., faculty, staff, teaching assistants) to use academic performance as a potential indicator of more harmful, underlying issues. Importantly, by law (e.g., Title IX, SaVE Act), many of these issues are required to be addressed in the university setting (see Griffin et al., 2017; Wiersma-Mosley & DiLoreto, 2018). Specifically, occurrences of sexual misconduct must be remedied, which may include providing victims access to health care for injuries, counseling, changes to schedules, housing, transportation, and/or legal representation. These events may also be related to increased stress levels and negative trauma coping mechanisms such as substance use. Additionally, campus health clinic medical staff and counseling center staff can be trained to use forms that screen for victimization for students who present mental or physical health issues.

Similarly, some universities use “early alert” systems to identify students who may be at risk of falling behind in their courses. For example, early in the semester, professors are asked to submit the names of students and details about their current and expected progress in their course (Delmas & Childs, 2020). When the system receives the student names, students are prompted to complete an online assessment, and the early alert teams provide students with an appointment with an academic coach (Delmas & Childs, 2020). The early alert teams and academic coaches could be assigned additional trainings to help identify students who may be falling behind academically due to underlying issues (i.e., mental health, physical health, substance use). When those students are identified, they could then be referred to the appropriate university clinics, counseling centers, or other offices.

## **Limitations and Future Directions**

Our study had many strengths, but there were also limitations. First, these data are cross-sectional, so time-order cannot be determined, although we argue that polyvictimization is likely to lead to academic performance issues rather than vice versa. It is also plausible that a reciprocal effect exists, meaning low academic performance may lead to polyvictimization. For example, if a student is performing poorly in their academic life, they may experience negative reactions from others or cope negatively by using substances. These reactions from others and negative coping strategies may then place them at risk of experiencing multiple types of victimization. Future research should look to perform more sophisticated modeling procedures (e.g., reciprocal effects model; SEM) to parse out these effects and/or use longitudinal data to examine the relationship between polyvictimization and academic performance. We examine self-report GPA and academic performance impact measures as outcomes, but our results cannot speak to causality, without longitudinal data. Additionally, we would like to note that these data do not provide the numerical breakdown of GPA letter grades. Thus, since GPA is not standardized across all universities, it is possible that different schools used different scoring to categorize their letter grades. Second, despite only using schools that used random sampling techniques, the ACHA-NCHA II data are not nationally representative due to schools being able to self-select into the study (ACHA, 2019). Thus, findings cannot be directly generalized to other schools throughout the U.S. Third, the victimization questions do not allow researchers to confirm that victimization happened while enrolled at college. For example, college freshmen may have experienced victimization within the months prior to coming to college. Fourth, the victimization measures in the ACHA-NCHA II data are limited in scope in that they do not capture the full range of victimization experiences that college students may face (e.g., cyberbullying) and do not

account for the frequency of incidents. It is also possible that incidents include those perpetrated by intimate partners and others, as the questions do not direct the respondent to answer in reference to non-intimate partners. Future research should consider using a consistent measure of polyvictimization so that prevalence estimates and polyvictimization outcomes can be directly compared. Moreover, due to much of the polyvictimization literature focusing on child/adolescent samples, it may be beneficial for future research to include measures of victimization during childhood or adolescence to compare effects. Finally, it would be beneficial to collect qualitative data related to the current study to better tease out the relationships between these measures of academic performance and polyvictimization.

### **Conclusion**

Our study adds to the literature by examining the relationship between polyvictimization and self-reported GPA among college students. We examine how polyvictimization may negatively impact academic performance via specific issues (i.e., mental health, physical health, and substance use) among college students. We add to the existing literature that documents the link between polyvictimization and negative outcomes. We find that polyvictimization is connected to lower self-reported GPA. Additionally, the odds of having mental health issues, physical health issues, or substance use issues that affect academic performance are higher for polyvictims than non-polyvictims. These findings demonstrate the importance of identifying the mechanisms through which academic performance is harmed among polyvictims.

## CHAPTER V: CONCLUSION

### Overview

When examining polyvictimization (i.e., experiencing multiple types of victimization), it is clear that there is much that is not well understood. Specifically, much of this literature has historically focused on samples of youth, including several systematic reviews synthesizing work on this specific group (i.e., polyvictimization during childhood/adolescence). However, these reviews cannot be generalized to other populations (i.e., adults who experience polyvictimization during adulthood) because children and adolescents often have very different lifestyle experiences than those of adults. Thus, there was a clear gap and need for a review examining polyvictimization and its correlates and consequences among adults. Similarly, when examining correlates of polyvictimization within the review, few studies examine stable traits (e.g., personality) that may distinguish between non-victims, victims, and polyvictims, and none use longitudinal data. The second paper used a seminal longitudinal sample of justice involved youth (i.e., Pathways to Desistance) to explore the relationship between the Big Five personality traits (i.e., neuroticism, extraversion, openness, agreeableness, conscientiousness) and polyvictimization. Finally, to explore a possible consequence of polyvictimization that has not been fully explored, the third paper examined polyvictimization and academic performance among college students.

Each paper provides a detailed discussion of results, but an overview of results for each paper are also presented here. First, the systematic review included search results (n=1,404) from nine databases. Using multiple inclusion and exclusion criteria, these results were screened to a final sample of 25 studies eligible for qualitative analysis. Studies were analyzed and discussed based on their setting, samples, correlates, consequences, and how they measured polyvictimization. Two main findings emerged. The first finding was that across the many

correlates and consequences explored (e.g., physical health, mental health, relational factors, attitudes, behaviors, prior victimization, life experiences), prior victimization was the most consistent correlate of polyvictimization, and depression was the most consistent consequence associated with polyvictimization. The relationships between prior victimization and polyvictimization may be explained by population (risk) heterogeneity perspectives. Specifically, risk heterogeneity perspectives argue that individuals possess stable traits or factors (e.g., substance use) that place them at risk for victimization, and when these traits or factors are not changed, they will continue to put them at risk (Sparks, 1981). As mentioned, depression was the most consistent consequence associated with polyvictimization across studies. This finding is expected given past reviews often finding a link between victims and increased psychopathology symptoms (see Dworkin et al., 2020; Dworkin et al., 2017) and may be explained by viewing victimization as a form of trauma impacting mental health and daily functioning.

Within the review, the second main finding was that measurement strategies for polyvictimization varied widely across studies, but this variation did not appear to impact findings related to the correlates or consequences. Despite measurement inconsistency not impacting findings, these variations may be impacting prevalence estimates dependent upon the recall period used. Supporting this assertion, research has found that variation in measurement strategies for polyvictimization can result in the identification of different prevalence estimates and different polyvictim groups (i.e., cases included for analyses) (see Ford & Delker, 2018; Segura & Guilera, 2018).

Second, the third paper (Chapter III) used longitudinal data of 1,354 justice-involved youth to examine personality traits (i.e., correlate) and polyvictimization. Of interest, prevalence estimates of polyvictimization within the sample were relatively high. Specifically, about 30%

had experienced two or more forms of victimization within wave 7. Estimates for polyvictimization were higher within and across waves 7-10 – about 61% of participants experienced two or more types of victimization. In addition to identifying prevalence, this paper had two main findings.

The first main finding was that personality traits measured at an earlier time point do appear to influence experiencing polyvictimization at a later time point. This finding was expected given past research finding a link between stable traits and victimization and/or polyvictimization (Boccio & Beaver, 2021; Bowling et al., 2010; Cawvey et al., 2018; Daigle & Teasdale, 2018; Flexon et al., 2016; Fontaine et al., 2018; Kerig & Modrowski, 2018; Kulig et al., 2019; Pratt et al., 2014; Tanskley et al., 2020). It was also expected due to being in line with previously discussed risk heterogeneity perspectives (Sparks, 1981).

The second main finding was that contrary to hypotheses (i.e., that neuroticism and extraversion would be associated with polyvictimization), agreeableness and openness were the only traits that significantly predicted polyvictimization. Agreeableness was associated with decreased odds and openness was associated with increased odds of experiencing polyvictimization relative to experiencing no victimization or a single type of victimization. Supporting this finding, Cawvey et al. (2018) found that agreeableness was significantly associated with decreased victimization risk, but openness was associated with significantly increased victimization risk. Additionally, those high in agreeableness are often characterized as being trustable, good-natured, cooperative, forgiving, and tolerant (Barrick & Mount, 1991). Those high in the openness trait are often viewed as being imaginative, open-minded, and curious (Barrick & Mount, 1991). Thus, someone who is often cooperative and tolerant may be able to avoid experiencing victimization by being skilled at conflict resolution. Offenders may

also take advantage of someone who is open-minded and curious by manipulating them into dangerous situations. Further, those high in agreeableness or openness may also engage in behaviors deemed high-risk (e.g., substance use) more frequently than others. Thus, according to L/RAT perspectives, these individuals will be more likely to be around potential motivated offenders and be viewed as a suitable target without capable guardianship (Cohen & Felson, 1979; Hindelang et al., 1978).

Third, Chapter IV examined the relationship between polyvictimization and academic performance (i.e., consequence) using data from the Spring 2019 administration of the American College Health Association's National College Health Assessment II (ACHA-NCHA II). Five key findings emerged. First, approximately 4% of this sample had experienced polyvictimization (i.e., two or more types of victimization). These polyvictimization estimates are comparable to those found in other studies examining college student samples (Banyard et al., 2020; Wood et al., 2020). The second finding was that polyvictimization was indeed related to having lower GPAs among college students. These findings are also supported by past research examining this relationship using retrospective polyvictimization measures. Specifically, other research has found that experiencing multiple types of childhood maltreatment was related to poorer GPA performance (Welsh et al., 2014).

In addition to producing prevalence estimates and demonstrating a link between GPA and polyvictimization, the third main finding from Chapter IV was that the odds of having academic performance issues impacted by mental health are higher for polyvictims compared to non-polyvictims (i.e., single type victims and non-victims). Similarly, as the number of victimization types experienced increases, the odds of experiencing academic performance issues related to mental health also increase. These findings are supported by past research that has found a link

between mental illness and experiencing polyvictimization. Specifically, research has connected polyvictimization to increased psychological distress (Richmond et al., 2009), psychological symptoms, (Ross et al., 2019) and depression (Sabina & Straus, 2008), but research has not yet explored how polyvictimization is connected to having mental health impact academic performance. Fourth, similar to the mental health-related academic performance findings, the odds of having academic performance issues connected to physical health are higher for polyvictims relative to non-polyvictims, and as the number of victimization types experienced increases, the odds of experiencing physical health-related impacts to academic performance also increase. This relationship is consistent with those found in the general victimization literature. Specifically, research consistently finds a link between victimization and experiencing physical health problems (see López-Martínez et al., 2018; Riedl et al., 2019; Witte et al., 2015). The fifth and final key finding from Chapter IV is that polyvictims also have higher odds of having substance use issues impact their academic performance relative to those who are not polyvictims. Similar to the other findings, students who experienced three victimization types had the highest odds of having academic performance issues impacted by substance use.

It is also important to highlight that the samples used within this dissertation have wide variation and as such, it is important to remember that context may matter in regard to interpreting the findings. More specifically, the study samples from the systematic review were all adult samples of either college students, system/services involved persons, older adults, or other more general population samples, and my second and third papers used a longitudinal sample of justice involved youth and then a national-level sample of college students. Thus, the context across these groups is likely vary different. For example, those included in the justice-involved youth sample likely experienced many life altering events (e.g., jobs, partners, further

delinquency) during the course of data collection. Additionally, those individuals from the Pathways data also likely had very different experiences than those from the ACHA-NCHA data (i.e., college students). In addition to the context of the sample itself, information about the victimization incidents is not provided. Specifically, for many of the polyvictimization measures identified within the systematic review and for both empirical papers, perpetrator type was not identified, so I am unable to determine if someone experienced multiple types of victimization from a partner, family member, or stranger. It may be that the context surrounding polyvictimization based on offender type matters because someone who is experiencing victimization by a partner, which could affect prevalence estimates. Likewise, related correlates and outcomes may also change as substance use and social outings may not increase risk for someone experiencing polyvictimization by a partner as the incidents often happen behind closed doors. It may also be that polyvictimization changes overtime. For example, if a victim moved out of the home where they were being victimized, or if they broke up with a partner that was harming them.

### **Review of Key Implications and Recommendations**

Based on these findings, several key implications and recommendations for future research as well as practice emerged. First, related to the findings from the systematic review and correlate paper, healthcare facilities should have their patients fill out victimization screeners, given the link between polyvictimization and mental and physical health. These screeners could remain private due to doctor-patient confidentiality. After filling out a screener, doctors could then better understand how victimization may be related to their patients' illness or injury. This knowledge would allow doctors to provide their patients who were experiencing victimization

and polyvictimization with potential resources or services to prevent future incidents. In applying the previously discussed risk heterogeneity perspectives (Sparks, 1981), service agencies could also assist their clients with identifying stable characteristics about themselves or their behaviors (e.g., mental illness, mental disability, substance use) that may be exposing them to multiple victimization risk. As an example, someone who experienced victimization while binge drinking could be recommended to designate a trusted individual(s) to ensure their safety when drinking in the future. Additionally, since research has established that personality traits and behaviors are often linked (see Baer, 2002; Lonsdorf & Merz, 2017), service providers could also assist their clients with completing a personality inventory and use their responses as a guide to tailor intervention and counseling efforts. It should be mentioned again that the responsibility of preventing victimization should not be on the victim, and that victimization can still occur even when adopting prevention strategies. Nonetheless, understanding why a person engages in behaviors or why they may be targeted by others can help a person reduce their risk.

Victim service providers might also consider offering mental and physical health screeners to those they are assisting. Those experiencing victimization or multiple victimizations could then be referred to the appropriate mental or physical health provider to assist them in treating their mental illness or physical health problem. Inasmuch as these factors are risk factors for victimization, treatment may then alleviate some future victimization risk. Additionally, victim service providers should work toward providing trainings for their employees that teach providers how to recognize mental illness or other physical health symptoms. These employees could then refer clients to much needed mental health professionals or physicians for treatments tailored to their needs. The reverse should also be implemented for mental health professionals and all medical personnel. Specifically, these individuals should attend trainings that teach them

how to recognize the many potential risk factors for victimization and know how to refer patients to victim service agencies for services (e.g., legal, safety planning, reporting, court dates).

In addition to intervention recommendations, my study findings suggest recommendations for future research. Researchers should ensure that their variable conceptualizations, findings, and recommendations are presented in a clear and concise manner, especially if works are to be disseminated to practitioners who may want to develop programming based on this area of research. In line with this recommendation, researchers should also work toward clearly identifying what type of polyvictimization they are examining (e.g., specific if using only items such as sexual harassment and rape; broad if using summed or distinct broad types such as violent, sexual, and stalking victimization). Even though the different measurement approaches to polyvictimization do not appear to influence findings regarding correlates and consequences of polyvictimization, researchers should work toward using explicit wording so that others can easily replicate their research and compare findings across studies. Additionally, most of the studies did appear to be consistent on the number of types needed to be a polyvictim (i.e., two or more types), which may indicate that future research in this area should also examine polyvictimization in this way. Finally, several of the studies used victimization items that were tailored to their population (e.g., older adults – neglect/financial abuse). When designing surveys, researchers should ensure they include victimization items most applicable to the proposed study sample to ensure items are relevant and recognizable to their participants. Additionally, when using secondary data, researchers should create polyvictimization measures from forms of victimization that are relevant to their sample.

Findings from the consequence paper examining polyvictimization and academic performance can also be used to present policy implications and recommendations specific to

colleges. First, administrators at universities could use academic performance as a potential indicator of additional, more harmful issues that may be impacting students' ability to excel academically and refer students to the appropriate offices for assistance. Second, campus medical personnel and staff within the counseling center should be trained on how to use victimization screeners for students who indicate experiencing mental or physical health ailments. Third, early alert systems provide an already implemented resources for universities to identify students who are at risk of failing their courses. These systems allow professors to submit names and details regarding student performance early on in the semester (Delmas & Childs, 2020). After the names and details regarding the students' class performance have been received, students are asked to complete an assessment online. Then, those operating on the early alert team provide the student a meeting with an academic or peer coach (Delmas & Childs, 2020). Thus, early alert systems can easily be modified to assist those experiencing victimization as a way to prevent impacts to academic performance. For example, early alert staff, peer coaches, and academic coaches could be offered additional trainings about how to identify students who may be falling behind academically due to underlying issues (i.e., mental health, physical health, substance use). After being identified, students could receive referrals to the appropriate university clinics, counseling centers, or other offices.

### **Directions for Future Research**

Despite what we know about polyvictimization, future research is still needed to fully understand the prevalence, correlates, and consequences of polyvictimization. First, future systematic reviews should examine retrospective and lifetime measures of polyvictimization and its correlates or consequences as well as polyvictimization among individual subgroups. It may also be beneficial to complete a review examining repeat (i.e., same type more than once)

victimization and its correlates and consequences to examine similarities and differences between repeat and polyvictimization. Second, future research should look to explore how the correlates and consequences identified here impact individuals using qualitative interviews. Third, the systematic review identified a great need for longitudinal data to truly understand the causes and consequences of polyvictimization.

Future research should also build on my finding that certain personality traits and polyvictimization are connected. First, future research should examine this relationship using methods that account for causality (e.g., propensity score matching). Second, future research should also use qualitative interviews or focus groups to examine the relationship between personality traits and polyvictimization as well as whether participants would be interested in learning tools previously discussed (e.g., critical thinking exercises; assertive actions). Third, as this study did focus on a high-risk sample of justice involved youth, it may be beneficial for future research to use a community-based sample. Fourth, future research should explore other relatively stable traits to examine whether they also affect risk for polyvictimization.

Future research may also benefit from building on the finding that polyvictimization and academic performance are linked. First, future research should examine the relationship between polyvictimization and academic performance using longitudinal data that can establish time order between the constructs. Second, much of the polyvictimization literature focuses on child/adolescent samples, thus, it may be beneficial for future research to include childhood and adolescent measures of victimization to compare effects. Third and final, there is also a need for qualitative data within this area of research to better understand the relationship between polyvictimization and academic performance, and more specifically, whether students associate their victimization experiences as being responsible for their academic performance issues.

## **Conclusion**

Polyvictimization (i.e., experiencing multiple types of victimization) has been frequently studied among children since Finkelhor and colleagues' (2005) coined the term. Less is known about the correlates and consequences of polyvictimization among adult and older adolescent samples. Additionally, even less is known about polyvictimization using longitudinal data. Thus, this dissertation addresses three major gaps within the literature by producing three interconnected papers. Specifically, Chapter II provides a systematic review of the correlates and consequences of polyvictimization among adults and finds that prior victimization is the most consistently used correlate of polyvictimization, while mental illness (mainly depression) is the most consistently used consequence of polyvictimization. Variations in measurement also existed, but the majority of studies characterized polyvictimization as being two or more types. Chapter III then addresses a specific correlate of polyvictimization – personality. Results from this study show that agreeableness is associated with a significant decrease in the odds of experiencing polyvictimization, and openness is significantly associated with an increase in the odds of being a polyvictim relative to experiencing no victimization or a single type of victimization. Finally, Chapter IV examines a specific consequence of polyvictimization, finding that experiencing polyvictimization is indeed, related to lower GPA and academic performance issues related to mental health, physical health, and substance use. In light of all of these findings, it is pertinent that service providers develop prevention/intervention programming that is founded upon relevant risk factors within the literature and tailor assistance approaches at an individual level (e.g., refer and work with other service providers/university officials) to those already experiencing polyvictimization.

### Appendix A. Correlation Matrix

Variables <sup>9</sup>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) GPA	1.000														
(2) AP Mental Health	<b>0.237</b>	1.000													
(3) AP Physical Health	<b>0.121</b>	<b>0.348</b>	1.000												
(4) AP Substance Use	<b>0.051</b>	<b>0.177</b>	<b>0.129</b>	1.000											
(5) Polyvictimization	<b>0.019</b>	<b>0.116</b>	<b>0.102</b>	<b>0.079</b>	1.000										
(6) Polyvictim Count	<b>0.063</b>	<b>0.134</b>	<b>0.101</b>	<b>0.036</b>	<b>0.130</b>	1.000									
(7) Enrollment Status	<b>-0.031</b>	<b>0.026</b>	<b>0.016</b>	<b>0.009</b>	0.007	<b>0.021</b>	1.000								
(8) Weekly Work	<b>-0.046</b>	-0.003	-0.000	0.001	<b>0.004</b>	<b>0.011</b>	<b>-0.134</b>	1.000							
(9) Binge Drinking	<b>0.057</b>	<b>0.053</b>	<b>0.061</b>	<b>0.200</b>	<b>0.060</b>	<b>0.083</b>	0.040	0.004	1.000						
(10) Illicit Drug Use	<b>0.026</b>	<b>0.110</b>	<b>0.079</b>	<b>0.204</b>	<b>0.090</b>	<b>0.044</b>	-0.004	<b>0.007</b>	<b>0.178</b>	1.000					
(11) Marijuana Use	<b>0.072</b>	<b>0.131</b>	<b>0.088</b>	<b>0.203</b>	<b>0.078</b>	<b>0.094</b>	<b>0.030</b>	<b>0.008</b>	<b>0.311</b>	<b>0.268</b>	1.000				
(12) LGBTQ+	<b>0.011</b>	<b>0.168</b>	<b>0.069</b>	<b>0.042</b>	<b>0.070</b>	<b>0.072</b>	<b>0.112</b>	0.003	<b>0.006</b>	<b>0.082</b>	<b>0.134</b>	1.000			
(13) Birth Sex	<b>0.034</b>	<b>-0.098</b>	<b>-0.094</b>	<b>0.046</b>	<b>-0.061</b>	<b>-0.087</b>	-0.003	<b>-0.026</b>	<b>0.063</b>	<b>0.027</b>	<b>0.012</b>	<b>-0.079</b>	1.000		
(14) Age	<b>-0.108</b>	<b>0.058</b>	<b>0.028</b>	<b>0.030</b>	<b>0.039</b>	<b>-0.074</b>	<b>0.319</b>	<b>0.355</b>	<b>0.065</b>	<b>-0.001</b>	<b>0.069</b>	<b>0.050</b>	<b>-0.045</b>	1.000	
(15) Race/Ethnicity	<b>0.106</b>	<b>0.065</b>	<b>0.052</b>	<b>0.022</b>	<b>0.039</b>	<b>-0.010</b>	<b>-0.071</b>	<b>-0.066</b>	<b>0.104</b>	<b>0.039</b>	<b>0.071</b>	<b>0.060</b>	<b>0.044</b>	<b>-0.034</b>	1.000

<sup>9</sup> Birth sex was coded as (0) female (1) male, and race/ethnicity was coded as (1) White, (2) Black, (3) Hispanic or Latino/a, (4) Asian or Pacific Islander, (5) Other (i.e., American Indian, Alaskan Native, Native Hawaiian, Biracial or Multiracial, and Other). AP stands for academic performance.

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## VITA

Katelyn P. Hancock is a first-generation college student who pursued and attained a Bachelor's degree in Psychology from Tennessee Tech University because she wanted to help people. Katelyn then went on to receive her master's degree in Criminal Justice from the University of Tennessee Chattanooga. She will now be receiving her Ph.D. in Criminal Justice and Criminology from Georgia State University (GSU). Katelyn's research interests focus primarily on the correlates and consequences of and responses to victimization and polyvictimization of diverse groups. Katelyn received the 2020 GSU Department of Criminal Justice and Criminology Leadership Award, and the 2021 GSU Department of Criminal Justice and Criminology Excellence in Teaching Award. She is also an Academy of Criminal Justice Sciences (ACJS) Doctoral Summit Fellow. Her most recent works appear in the *Journal of Interpersonal Violence*, *American Journal of Criminal Justice*, and the *Journal of Ethnicity in Criminal Justice*. Katelyn and Dr. Leah E. Daigle won the *Journal of Ethnicity in Criminal Justice* Best Paper Award for 2021 presented by the ACJS Minorities and Women section.