RAPE MYTHS AND PROCLIVITY TO PERPETRATE IN MALE COLLEGE

STUDENTS

By

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ABSTRACT OF THE DISSERATION

Rape Myths and Proclivity to Perpetrate in Male College Students

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This dissertation is divided into three separate papers that address campus sexual

violence perpetration related attitudes and beliefs, namely rape myth beliefs and rape

proclivity. The aim of this study is to better understand college men's attitudes and

beliefs in order to prevent perpetration of sexual violence. Campus sexual violence

prevention efforts, while now mandated at the federal and local level, are often

ineffective at reducing rates of sexual assault. One method of improving the effectiveness

of campus prevention efforts might be to tailor programming toward students with

differing attitudes and beliefs related to sexual violence. Research on prevention

education for campus sexual violence often examines rape myth beliefs which have never

been investigated using Latent Profile Analysis (LPA). These types of techniques

categorize or group participants into subgroups that differ based on their beliefs. Paper 1

of this dissertation is the first of its kind to use LPA to examine differing types of levels

of rape myth beliefs that incoming college men hold. This study found four profiles or

subgroups of men based on their rape myth beliefs. Some groups endorsed lower or mid-

levels of rape myths and others endorsed higher levels of some or all rape myths, indicating the heterogeneity of rape myth beliefs. These results can be used to inform prevention efforts geared towards addressing problematic beliefs, such as rape myth beliefs, and used to guide tailoring of such programming toward subgroups of students with differing levels and types of rape myth beliefs.

The two constructs of rape myth beliefs and rape proclivity have been found to be associated with sexual violence perpetration; thus, further understanding these constructs can help improve prevention efforts aimed at reducing sexual violence perpetration. Paper two of this dissertation examines four subgroups (latent profiles) of college men based on their rape myth beliefs in order to examine two research questions:1) is membership within each subgroup/profile differentially associated with rape proclivity? And 2) within each subgroup of rape myth beliefs of college men, is proclivity to perpetrate sexual assault affected by intention to join an all-male sports team and/or a fraternity (two risk-factors) or bystander attitudes (a protective-factor)? The findings indicate that three subgroups of men with moderate or high levels of rape myth beliefs have higher mean rape proclivity scores compared to the subgroup of men with the lowest level of rape myth beliefs. This relationship is significantly decreased by bystander attitudes, a protective-factor, within three of the subgroups. Additionally, intention to join a fraternity, a risk-factor, strengthens rape proclivity in some, but not all, of the subgroups of men. Implications for prevention programming tailored for high-risk groups of men, based on their rape myth beliefs, as well as possible future research within this area are discussed.

Both rape myth beliefs and expressed proclivity to perpetrate a sexual assault are associated with acts of sexual aggression. Although this relationship is assumed to be unidirectional with the acceptance of rape myths contributing to proclivity to perpetrate sexual violence, no studies have examined the possibility of a reciprocal relationship, with both rape myth beliefs and proclivity to perpetrate reinforcing each other over time. This is important as both constructs may increase risk of sexual assault perpetration and support each other over time, further escalating the risk of a sexual assault. Using longitudinal data, Paper 3 of this dissertation investigates these relationships over time according to two models: autoregressive effects of rape myth beliefs and proclivity to perpetrate sexual violence, and rape myth beliefs and rape proclivity predicting each other. The results of this study indicate that reciprocal causality exists for rape myth beliefs and proclivity to perpetrate a sexual assault. The results of this study have clear implications for prevention efforts directed towards modifying attitudes associated with sexual assault perpetration—particularly for men who are at high-risk of perpetrating sexual assault, including those with high rates of rape myth beliefs and proclivity to perpetrate beliefs.

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Chapter 1: Introduction

The earliest study of campus sexual assault, called "male sex aggression," was conducted over sixty years ago (Kirkpatrick & Kanin, 1957) while the seminal study on the issue with a representative, random sample was conducted several decades ago (Koss, Gidycz, & Wisniewski, 1987). This, and much of the subsequent research and interventions, which focused on victims rather than perpetrators (DeGue et al., 2014), created a gap in our understanding of what causes sexual violence perpetration and how to prevent it. To truly stop sexual violence, primary prevention efforts ultimately need to stop violence before it occurs by addressing perpetrators, not victims, of sexual violence (Basile et al., 2016; DeGue et al., 2014). One method of primary prevention is to identify risk-markers unique to students who are more likely to perpetrate sexual violence and direct prevention messages towards these students. Rape myth beliefs are commonly held by students about rape and attribute blame to victims (Brownmiller, 1975; Burt, 1980b). These false beliefs are frequently targeted by prevention programs as they are associated with perpetration of sexual violence among college men (Yapp & Quayle, 2018). Despite strong links between rape myth beliefs and sexual violence, research is needed to understand how rape myth beliefs cluster together and their relationship to constructs related to sexual violence perpetration. Person-centered methods are particularly suited for examinations that cluster or categorize groups; these methods, namely latent profile analysis (LPA), are used in two of the papers within this study. Accordingly, the three papers in this study address how rape myth beliefs are related to proclivity to perpetrate sexual violence on college campuses.

Purpose of the Current Study

This study examines rape myths through three separate papers. All three papers in the current study examine rape myth beliefs among male college students. Paper 1 identifies subgroups of men who endorse differing types of rape myths. Paper 2 examines covariates and outcomes related to these subgroups, or ("profiles"). Paper 3 works to understand the relationship between rape myth belief acceptance and rape proclivity over time. The specific aims for these three papers include: 1) categorizing incoming male college students' rape myth beliefs into differing subgroups in Paper 1; 2) identifying how selected covariates, of sexual violence perpetration, including intention to join a fraternity and/or athletic team (risk-factors) and bystander attitudes (a protective-factor), are associated with proclivity to perpetrate sexual violence in Paper 2; and 3) understanding the causal relationship between rape myth beliefs and proclivity to perpetrate sexual violence in Paper 3. This study achieves these aims through three papers using secondary data analysis as outlined in the data section of this document. All three papers focus on primary prevention of sexual violence perpetration as the ultimate means to eliminate campus sexual violence.

Primary Prevention: Focusing on Perpetration

The papers in this study focus on understanding key factors in addressing and preventing sexual violence perpetration on college campuses. This focus is essential because true primary prevention efforts should focus on stopping perpetration before it occurs (DeGue et al., 2014). Primary prevention—as opposed to secondary or tertiary prevention, which addresses problems during or after they have occurred—aims to stop problems before they happen: in this case, stopping perpetrators from committing acts of

sexual violence. Such efforts shift the focus away from victims to the perpetrators who commit sexual violence.

Studies examining perpetrators of sexual violence, including campus sexual violence, are few (Lisak et al., 2000; Lisak & Miller, 2002), and very few prevention programs have been effective at reducing perpetration rates (DeGue et al., 2014). Individual risk-factors for perpetration of sexual violence may be categorized into three broad areas: 1) alcohol use (for a review see, (Abbey, Zawacki, Buck, Clinton, & McAuslan, 2004); 2) membership in all-male peer groups such as fraternities (Murnen & Kohlman, 2007; Sanday, 1990; Schwartz & DeKeseredy, 1997) and athletes (Murnen & Kohlman, 2007; Schwartz & DeKeseredy, 1997); and 3) attitudes and beliefs held by perpetrators including rape myth beliefs (Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Malamuth, Sockloskie, Koss, & Tanaka, 1991; Sarah K. Murnen, Wright, & Kaluzny, 2002; Suarez & Gadalla, 2010). In order to prevent campus sexual violence, it is necessary to expand our understanding of these existing risk-factors for perpetration. Hence, the papers in this study focus on attitudes and beliefs, namely rape myth beliefs: a construct that has been found to be heavily influenced by gender.

Gender and Sexual Violence

The current study looks at rape myth beliefs specifically among college men, due to the salience of gender. Research consistently finds that 20-25% of women report experiencing sexual violence during college (Cantor & Thomas, 2015; Fisher, Cullen, & Turner, 2000; Koss et al., 1987; Krebs, Lindquist, Warner, Fisher, & Martin, 2007). Men can be victims of sexual violence but at considerably lower rates than women (Black et al., 2011); conversely, the majority of perpetrators of sexual violence are men (Cantor &

Thomas, 2015; Krebs et al., 2007; Tjaden & Thoennes, 2006) with nearly 25-30% of males indicating that they have perpetrated an act of sexual violence while in college (Abbey, McAuslan, & Ross, 1998; Koss et al., 1987; Thompson, Swartout, & Koss, 2013; Zinzow & Thompson, 2015a, 2015b). Studies examining perpetration starting with adolescence find similar or slightly higher rates, with approximately one fourth to one third of men admitting to committing an act of sexual violence (Dardis, Murphy, Bill, & Gidycz, 2016; Loh, Gidycz, Lobo, & Luthra, 2005; Murphy Austin, Dardis, Wilson, Gidycz, & Berkowitz, 2016; Swartout, 2013; Swartout, Swartout, Brennan, & White, 2015). Additionally, attitudes and beliefs associated with sexual violence perpetration, such as rape myth beliefs, are generally endorsed at higher rates by men than women (Flood & Pease, 2009; Suarez & Gadalla, 2010). This may be especially true in all-male settings as membership within these settings has been found to be associated with endorsement of rape myths (Murnen & Kohlman, 2007). This study focuses on men as the perpetrators of sexual violence against women on college campuses, while recognizing that in doing so, a full account of sexual violence is not explored as women can also perpetrate acts of sexual violence and sexual violence can occur in same-sex relationships. The following sections describe two constructs, rape myths and proclivity to perpetrate, researched in relationship to perpetration of sexual violence and used within the three papers of this study.

Rape Myth Beliefs

The focus of this study is one correlate of sexual assault perpetration—rape myth beliefs—which has been of interest to researchers both for its association with perpetration as well as constructs related to sexual violence such as sexism (Stoll, Lilley,

& Pinter, 2017). A large body of research has been developed around this construct. The term "rape myths" denotes false beliefs about rape, victims of such violence, or perpetrators of rape (Brownmiller, 1975; Burt, 1980b; Schwendinger & Schwendinger, 1974) and includes the idea that women's dress, behavior, alcohol use or other factors implies victims, not perpetrators, are to blame for sexual assault. Burt (1980), the first researcher to quantify rape myths through research, defined rape myths as "prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists," (p. 217) that serve as a justification for the decision to rape by perpetrators. These beliefs are theorized to be linked to perpetuation of sexual violence against women (Payne, Lonsway, & Fitzgerald, 1999).

During her original research, Burt (1980) found that sexually aggressive men were more likely to endorse rape myths than non-sexually aggressive men. Similarly, numerous studies have demonstrated that men are more likely than women to endorse rape myths (Carroll, Rosenstein, Foubert, Clark, & Korenman, 2016; Diamond-Welch, Hetzel-Riggin, & Hemingway, 2016; Hayes, Abbott, & Cook, 2016; Powers, Leili, Hagman, & Cohn, 2015; Sleath & Bull, 2015) and the effect of gender on rape myth beliefs has been further confirmed in a meta-analysis (Suarez & Gadalla, 2010). Furthermore, sexual aggression and coercion have been shown to be associated with rape myth beliefs (DeGue & DiLillo, 2004; DeGue, DiLillo, & Scalora, 2010; Murnen & Kohlman, 2007; Russell & King, 2016; Widman, Olson, & Bolen, 2013). Finally, Tharp et al. (2012) in a review study, examining both college and community samples of men, found that in 31 out of 36 studies, rape myth beliefs was associated with sexual violence perpetration.

Traditionally, rape myth beliefs have been used in research as a monolithic construct, wherein researchers use an average score of all rape myth items. Yet, other scholars contend that rape myths are multifaceted, and measurement of the construct should be done through subscales that reflect the various types of existing rape myth beliefs (Lonsway & Fitzgerald, 1994; McMahon & Farmer, 2011). These scholars have developed subscales of the rape myth beliefs scale including: 1) *She Asked for It*, 2) *It Wasn't Really Rape*, 3) *He Didn't Mean to*, 4) *She Wanted It*, 5) *She Lied*, 6) *Rape Is a Trivial Event*, 7) *Rape Is Deviant Event* and 8) *He Did Not Mean to Due to Intoxication,* and many scholars now use such types of rape myths scale that contain subscales. However, only a limited number of scholars have researched subscale differences, reflecting differing types of rape myths, and the implications of variation on outcomes by subtypes of rape myths. However, these subscales may be helpful in differentiating subtypes of rape myths that require differing interventions to address them. All three papers within this study employ rape myth subscales for analysis purposes. Additionally, Paper 1 examines subgroups of men who differ on type/subscales of rape myth beliefs endorsed by participants, while Paper 2 examines covariates (variables that vary) of these subgroups.

Rape myths and proclivity to perpetrate sexual violence. In addition to examining the role of rape myth beliefs, this study addresses the outcome of proclivity to perpetrate campus sexual violence. Like rape myth beliefs, proclivity to perpetrate sexual violence is an internal construct, namely it is an attitude about a behavioral intent. Proclivity to perpetrate sexual violence is a belief about the likelihood of committing behaviors under certain circumstances, for example if the person knew they would not be

caught. As a construct, rape proclivity is important because it is related to actual

perpetration (DeGue & DiLillo, 2004; Gidycz, Warkentin, Orchowski, & Edwards,

2011). Additionally, because measuring perpetration of sexual violence presents a

number of challenges (Bouffard & Goodson, 2017), measures of rape proclivity may

serve as an important proxy for perpetration of sexual violence and predict future

perpetration as found in at least one study (Gidycz et al., 2011).

The relationship between rape myth beliefs and proclivity to perpetrate is an

underdeveloped area of research that this study explores, specifically in Paper 3. The

existing research on this subject posits and has demonstrated that rape myth beliefs

predicts proclivity to perpetrate sexual violence (Bohner, Jarvis, Eyssel, & Siebler, 2005;

Bohner et al., 1998; Bohner, Siebler, & Schmelcher, 2006). However, it is also possible

that rape proclivity might predict rape myth beliefs. This relationship has not been

previously examined and this paper will be the first to do so.

Gaps in the research. The three papers within this study focus on rape myth

beliefs in college men and addresses a number of gaps in the current literature. Given

numerous studies documenting an association between rape myth beliefs and sexual

assault perpetration among men (DeGue & DiLillo, 2004; DeGue et al., 2010; Murnen &

Kohlman, 2007; Russell & King, 2016; Tharp et al., 2012; Widman & Olson, 2013; Yapp

& Quayle, 2018), the importance of research targeting rape myth beliefs is clear.

Researchers suggest that different types of rapes myths, as measured by various rape

myth subscales (e.g., *She Asked for It, He Didn't Mean to, etc.*), are an area that requires

further investigation. The rape myths subscales may represent differing, unique ideas,

each worthy of further research on its own (Edwards, Turchik, Dardis, Reynolds, &

Gidycz, 2011; Lonsway & Fitzgerald, 1995; Mouilso & Calhoun, 2013; Taschler & West, 2016). Specifically, Edwards and colleagues (2011) suggested that recognizing groups' differing endorsement (both higher levels and of differing types [subscales]) of rape myths may facilitate our understanding of the trajectory of rape myth beliefs and further the development of efforts to reduce endorsement of these myths. Additionally, Mouilso and Calhoun (2013) suggest that the association between rape myth subscales—the types of rape myths endorsed (not just overall rape myth beliefs rates)—and sexual violence perpetration is an area that warrants further investigation in order to examine how rape myth beliefs is linked with perpetration. Taken together, it is clear that rape myth beliefs are associated with sexual violence perpetration, yet further research is needed to understand how types of rape myths are related to perpetration and related constructs. The current study addresses this gap in the literature and includes a variable linked to perpetration, namely proclivity to perpetrate sexual violence.

Research has not addressed many determinants, beyond gender differences, of rape myth beliefs based on sociocultural factors (Suarez & Gadalla, 2010). In addition to identifying subgroups of men based on their rape myth beliefs, this paper also examines the influence of all-male peer groups. The effects of determinants such as rape myth beliefs may influence the uptake of prevention messages. Given that not all men are perpetrators of sexual assault, an important step in prevention is to identify groups of male students at high and low risk for sexual violence perpetration in order to tailor prevention messages appropriately. This study investigates such groups of men attending a university. Categorizing students into subgroups with varying risk-markers, as is done in Paper 1 and Paper 2, can be used to understand factors affecting prevention efforts

such as existing rape myth beliefs, and this understanding may ultimately be applied to reducing sexual assault rates on college campuses.

In addition to exploring risk-markers for sexual violence perpetration, Paper 3 examines the causal relationship between rape myth beliefs and proclivity to perpetrate campus sexual violence. Research demonstrates that rape myth beliefs are an antecedent to proclivity to perpetrate (Bohner et al., 2005; Bohner et al., 1998; Bohner et al., 2006); however, there are limitations to these studies. The major limitations include 1) the cross-sectional and correlational designs of these studies and 2) the direction of the association, as previous studies have examined rape myth beliefs' predictive relationship with rape proclivity, but not the reverse relationship: rape proclivity predicting rape myth beliefs. Limitations with the existing research are further described in Paper 3 and the analysis within this paper addresses these limitations.

Significance of the Study

The main contribution of the current study is to further our understanding of rape myth beliefs and proclivity to perpetrate, which has important implications for prevention programs on college campuses. Currently, few evidence-based interventions, prevention efforts, or programs are known to reduce perpetration rates of sexual violence. This may be in part due to a lack of clarity about how to tailor prevention efforts toward students with differing pre-existing attitudes and beliefs, such as rape myth beliefs, that create varying risk-levels. Prevention programs for campus sexual assault are rarely based on rigorous evidence and have proven ineffective over time (Anderson & Whiston, 2005; Breitenbecher, 2000; DeGue et al., 2014). Additionally, scholars have called for greater understanding of how to modify and tailor prevention efforts to differing groups of

students (Anderson & Whiston, 2005; Banyard, 2014). Understanding how attitudinal factors, such as rape myth beliefs, affects risk of perpetration is necessary to improve sexual assault prevention efforts on college campuses. This study not helps identify distinct subgroups of men based on their rape myth beliefs but it also provides additional nuance through exploring risk-markers for perpetration, including rape proclivity and intention to join an all-male peer group. The results of this study may help prevention educators identify varying types of student groups and work to tailor interventions appropriately for different subgroups. For social workers, and the field at large, the long-term objective of the type of research conducted in this study is to prevent sexual violence perpetration among college men though effective prevention programs.

 Person-centered methods. Two papers of this study (Paper 1 and 2) use person-centered methods that assume heterogeneity among individuals and examine differences between them. These methods are different from traditional variable-centered methods that investigate variables assumed to be homogenous across individuals (Masyn, 2013). While scholars contend that person-centered methods should be used to study violence, including risk-factors related to perpetration (Nurius & Macy, 2008; Swartout & Swartout, 2012), there is no existing research using person-centered methods to examine rape myth beliefs and individual variations on types of rape myth beliefs related to risk-factors for perpetration. By utilizing person-centered methods to examine rape myth beliefs, the current study will address this gap within the research field.

 Importantly, campus sexual violence has been found to peak as students first enter college (Cranney, 2015; Flack et al., 2008) and many prevention programs are ineffective in lowering rates of sexual violence (Anderson & Whiston, 2005; Breitenbecher, 2000;

DeGue et al., 2014). This study examines, through person-centered methods, how rape myth beliefs differ among men entering college in order to explore individual differences with the goal of informing prevention efforts aimed at reducing campus sexual violence rates, particularly as students first enter college.

Data

The current study uses quantitative methods and all research questions and variables relate to campus sexual assault. The main variable of interest is rape myth beliefs. Intention to join an all-male peer group for sexual assault perpetration as well as proclivity to perpetrate a sexual assault are included in the models because they have been found to be associated with perpetration of sexual violence within a meta-analysis and a longitudinal study (Gidycz et al., 2011; Murnen & Kohlman, 2007). The construct of bystander attitudes is included based on prior research indicating a negative association between rape myths and bystander attitudes (Banyard, 2008; McMahon, 2010; Orchowski, Berkowitz, Boggis, & Oesterle, 2016).

The data for this study come from five waves of a longitudinal study examining a campus bystander intervention program with undergraduate students and outcomes related to sexual violence including rape myth beliefs.[1] During data collection for this study, students completed a survey at college orientation before viewing a peer theater program aimed at increasing bystander behaviors surrounding campus sexual violence. Following the peer theater performance, researchers randomized students into an

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[1] This research was supported by a grant from the Centers for Disease Control and Prevention (CDC) to the Center on Violence Against Women and Children at Rutgers School of Social Work (grant number: 1R01CE001855-01). Its contents are solely the responsibility of the author and do not necessarily represent the official views of the CDC.

experimental and comparison group; students then completed additional waves of follow-up data collection. The same sample of 513 men was used for all analyses; Papers 1 and 2 use the baseline wave of data, while Paper 3 uses five waves of data. As Papers 1 and 2 use cross-sectional data only, within these papers, the method sections do not describe the longitudinal data nor the larger sample of the parent study. In order to keep Papers 1 and 2 concise and focused on the research questions outlined within those papers (see Table 1), the larger and more complex parent study and longitudinal data collection methods and sample were not detailed in an effort to be both precise and parsimonious in outlining the study methods. The longitudinal data and sample are described in further detail within Paper 3. The three papers in this study answer six research questions; each paper includes additional information about the data and methods of this study. See Table 1 for a summary of each paper including research questions, hypotheses, methods and variables.

Table 1: Summary of Research Papers, Research Questions, Hypotheses, Data Analysis Type, Methods, and Variables

Paper	Research Questions	Hypotheses	Data Analysis Type	Data Analysis Method	Variables
Paper 1	1) Are there meaningful patterns across individuals in terms of the types	Hypothesis 1: Rape myth beliefs will vary from person-to-person on the five rape myth	Cross sectional: Latent profile analysis (LPA)	LPA Class Enumeration and Selection of Final Unconditional Model	Rape myth beliefs subscales (variable of interest)

Paper	Research Questions	Hypotheses	Data Analysis Type	Data Analysis Method	Variables
	(subscales) of rape myths they endorse? 2) If there are meaningful patterns across individuals, how can male college students be categorized into profiles based on the type of rape myths individuals endorse?	beliefs subscales demonstrating heterogeneity across the sample. Hypothesis 2: Male college students will meaningfully differ on the pattern of rape myth beliefs subscales they endorse. Some students will endorse few, or none, of the rape myth subscales while others will endorse most or			

Paper	Research Questions	Hypotheses	Data Analysis Type	Data Analysis Method	Variables
		all of the rape myth subscales.			
	3) If there are meaningful patterns of rape myth beliefs across individuals, what are the characteristics of each subgroup of male college students related to participation in intention to join all-male peer groups?	Hypothesis 3: The profiles of rape myth beliefs of male college students will significantly differ on intention to participate in university level athletics or a fraternity.	Cross sectional: LPA	LPA Covariates.	Rape myth beliefs profiles (variable of interest); intention to join a fraternity (covariate); and intention to join an athletic team (covariate)
Paper 2	4) Are the profiles of rape	Hypothesis 4: Membership in	Cross sectional:	Predicting Proclivity to	Rape myth beliefs

Paper	Research Questions	Hypotheses	Data Analysis Type	Data Analysis Method	Variables
	myth beliefs of men differentially associated with proclivity to perpetrate sexual violence? 5) Is proclivity to perpetrate sexual assault associated with other factors within each profile?	profiles of rape myth beliefs will be significantly associated with proclivity to perpetrate sexual assault. Those profiles of college men who endorse a greater number of rape myth subscales will be associated with greater proclivity to perpetrate sexual assault. Hypothesis 5a: Within each profile, proclivity	LPA and Regression	Perpetrate Sexual Assault and Association with Covariates	profiles (independent variable); rape proclivity (dependent variable); bystander attitudes (covariate); intention to join a fraternity (covariate); and intention to join an athletic team (covariate)

Paper	Research Questions	Hypotheses	Data Analysis Type	Data Analysis Method	Variables
		to perpetrate sexual assault will be reduced by bystander attitudes. Hypothesis 5b: Within each profile, proclivity to perpetrate sexual assault will be strengthened among those who intend to join a fraternity and/or athletic team compared those who do not intend to join a			

Paper	Research Questions	Hypotheses	Data Analysis Type	Data Analysis Method	Variables
		fraternity and/or athletic team.			
Paper 3	6) What is the predictive relationship between rape myth beliefs and proclivity to perpetrate sexual violence attitudes over time?	Hypothesis 6a: Over time, rape myth beliefs and proclivity to perpetrate sexual violence will demonstrate strong autoregressive effects, indicating stability of the constructs over time. Hypothesis 6b: There will be reciprocal causality between rape myth beliefs	Longitudinal: Cross-Lagged Panel	Cross-Lagged Panel	Rape myth beliefs subscales (variable of interest); rape proclivity (variable of interest)

Paper	Research Questions	Hypotheses	Data Analysis Type	Data Analysis Method	Variables
		and proclivity to perpetrate sexual violence.			

Chapter 2: Conceptual and Theoretical Framework

This study uses a larger framework, the socioecological model, to broadly examine sexual violence on college campuses. The socioecological framework (see Figure 1) suggests that differing systems, including the macro, meso and microsystem, exert influence on an individual's behavior. Within each system are factors that influence behavior. This study also employs additional theories within the two system levels of the meso and microsystem to help explain influences on behaviors including Male Peer Support Theory, Sex-Role Strain Theory, and The Theory of Planned Behavior. The following sections explain the socioecological framework and the associated theories (see Figure 1) in greater detail. These theories are used to guide the current study but are not detailed within the three papers of the study with the exception of Male Peer Support Theory which is discussed within Paper 2.
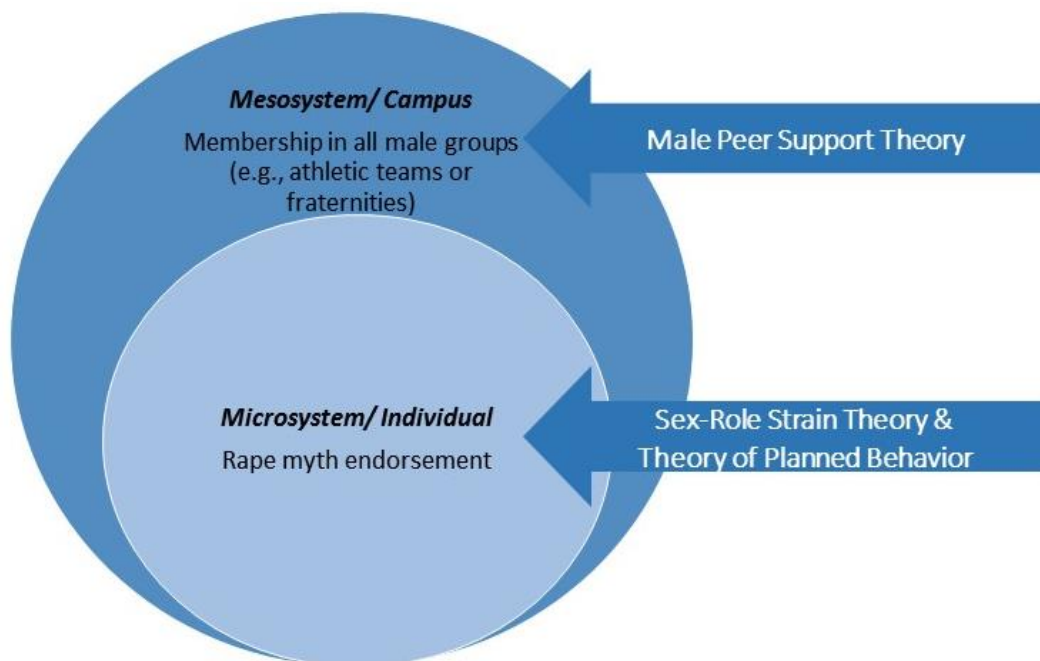
Figure 1: Socioecological Framework & Theories: Perpetration of Campus Sexual
Violence

The Socioecological Framework

The socioecological framework (Bronfenbrenner, 1979), attempts to explain why
people act as they do within their environment. This framework uses a series of systems
(microsystem, mesosystem and macrosystem) to examine the impact of individuals,
peers, family, institutions and cultural-level influences on behaviors and actions. The
framework can be used to examine what drives sexual violence perpetration within each
of these systems and, in particular, to examine what leads some men on campuses to
commit acts of sexual violence.

Previous research using the socioecological framework includes research on
masculinity and male health within a college setting (Shen-Miller, Isacco, Davies, Jean,
& Phan, 2013); bullying perpetration among high school students (Merrin, Espelage, &

Hong, 2016); teen dating violence (Banyard & Cross, 2008; White, 2009); violence against women with disabilities (Terry, 2014); the impact of sexual violence on survivors' mental health (Campbell, Dworkin, & Cabral, 2009) and the prevention of sexual violence (Casey & Lindhorst, 2009; Potter, 2016) including bystander interventions (Banyard, 2014; McMahon, 2015a). Finally, the Centers for Disease Control and Prevention has applied a socioecological framework to sexual violence prevention in order to examine factors across the ecological spectrum that affect perpetration and victimization risk (Dahlberg & Krug, 2002). This framework suggests that individual-level factors including attitudes, beliefs and behaviors surrounding perpetration can be targeted for intervention. In summary, socioecological frameworks have been used to examine how attitudes and individual factors, while shaped by sociocultural influences, lead to behaviors including to sexual violence perpetration.

The socioecological framework informs this study's investigation of what drives men to perpetrate sexual violence. The following sections of this paper examine two system levels 1) the mesosystem/campus influences on sexual violence including the all-male peer group, and 2) the microsystem/individual level, which is examined via two theories that explore the influences of attitudes and masculinity on individual behaviors. The mesosystem/ university level has factors unique to a campus environment—such as all-male peer groups (e.g., fraternities and athletic teams)—that heighten the risk for sexual violence perpetration. Likewise, at the microsystem/individual level, attitudes such as rape myth beliefs are linked to sexual violence (Tharp et al., 2012; Yapp & Quayle, 2018). The socioecological framework can direct our understanding of how these

individual-level factors drive behavior as well as larger socioecological influences on behavior.

While the exosystem is often included in sociocultural models, it is sometime combined with the mesosystem (e.g., (Campbell et al., 2009; White, 2009), as has been done here. The reason for this is largely because the focus of this study is on the micro and mesosystems, and none of the constructs are measured at the exosystem or macosystem level. Figure 1 illustrates the socioecological framework used in the current study in order to identify factors that lead college men to commit acts of sexual violence against women. Along with the framework outlining the systems that drive campus sexual violence are associated theories that help explain how factors within each system proliferate sexual violence.

Mesosystem/Campus Life

Research indicates that a major factor linked with campus sexual violence are all-male peer groups (Alvi, Schwartz, DeKeseredy, & Tait, 2001; Franklin, Bouffard, & Pratt, 2012). While many factors contribute to sexual violence, all-male peer groups in particular have a unique significance on college campuses, with these groups being highly interlinked with ideas of masculinity. The following sections will focus on the peer/mesosystem level to examine research on sexual assault on campuses and the role of all-male peer groups, in particular fraternity members and athletes.

Male peer support. The Male Peer Support Theory, first developed in 1988 (DeKeseredy, 1998a, 1998b) and further developed and modified in the following years (Dekeseredy & Schwartz, 1993), suggests that violence against women perpetrated by men is supported by peer norms. The theory has received empirical support (Alvi et al.,

2001; Dekeseredy & Schwartz, 1993; DeKeseredy & Schwartz, 2013; Franklin et al., 2012) and is outlined in several books (DeKeseredy, 1998b; DeKeseredy & Schwartz, 2013), including one specifically addressing sexual violence on college campuses (Schwartz & DeKeseredy, 1997).

The Male Peer Support Theory suggests that specific factors facilitate sexual violence against women within all-male peer-groups (e.g., fraternities and all-male sports teams). For example, some fraternity and athletic teams on college campuses may create an environment that prizes masculinity based on competition, sexual conquest of women, and aggression (Martin, 2016; Martin & Hummer, 1989; Murnen & Kohlman, 2007). Within all-male peer groups that strongly adhere to these beliefs, proof of masculinity through sex with women is an overriding concern (Kimmel, 2008). These types of beliefs may lead to members of these groups being more likely to perpetrate sexual violence as they are significantly more likely to hold hyper-masculine views (Murnen & Kohlman, 2007). This theory is described in greater detail within Paper 2.

Microsystem/Individual Level

The ultimate driver of behavior at the microsystem level is individual level factors including attitudes and beliefs. Given the messages men receive regarding sexuality and masculinity, the resulting attitudes may include rape myth beliefs which are associated with sexual assault. We must examine how attitudes, in particular rape myth beliefs, might theoretically lead to sexually aggression by male college students. Role strain theories and the Theory of Planned Behavior are two theories that may help explain individual behavior including how attitudes and beliefs may affect sexual violence perpetration.

Role strain theories. Role strain theories suggest that sexual violence is more likely to be perpetrated under particular circumstances or occasions, namely under stress or insecurity about one's gender role. Pleck (1981) Sex-Role Strain Theory posits that violations of gender-role expectations cause internal stress for both men and women. A particularly well-researched and theorized aspect of sex-role strain is men's fear and avoidance of the feminine and homophobia (O'Neil, 1981; O'Neil, Helms, Gable, David, & Wrightsman, 1986). In a similar vein, Male Gender-Role Stress Theory (O'Neil, 1981) explores how men may feel they continually fail to live up to the hegemonic masculine ideal and as a result, fear that others will view them as a failure. Men may fear being perceived as feminine, which is often coupled with fear of being labeled as gay. Hypermasculinity and homophobia are encouraged and exaggerated as a result. A construct especially relevant for sexual violence is socialized control, power and competition that is often expressed through sexual relationships with women for which men complete. As Martin (2016) put it, "Instead of treating women with respect and valuing their contributions, they (fraternity men) view them as fodder in competitions to prove their masculinity (Sanday 1990)" (p. 33). This synergy of competition and masculine norms surrounding sexual drive is particularly compelling for college men who may resort to "destructive strategies" (e.g., sexual violence) to compete with other men (Harris & Harper, 2008, p. 71).

It seems likely that sexual violence might serve as both a reaffirmation of masculinity and also a direct rejection of the feminine through dominance and sometimes violence, while at the same time proof of heterosexuality through rejection of homosexuality. Harper and colleagues (2005) linked gender-role stress with college

men's destructive behavior including sexual assault. Others have called sexual violence a resource to confirm masculinity (Messerschmidt, 2000; Taylor, Nair, & Braham, 2013). Sarah K. Murnen (2015) points out that violence against women as an attempt to assert masculinity is consistent with earlier feminist theories of rape such as that of Brownmiller (1975).

The Theory of Planned Behavior. Tying sociocultural influences of masculinity to individual behavior can be done in part through The Theory of Planned Behavior (TPB) (Ajzen, 1991, 2001, 2005), and examining individual attitudes and their effect on behavior. The TPB has been widely used and tested in conceptualizing individual behaviors and how such behaviors can be modified (Ajzen, 2001). The TPB has been used in explaining a number of behaviors related to violence including bullying (Hawley & Williford, 2015); violence in adolescent males (Motlagh et al., 2013); protection from sexual harassment and abuse (Man Yu, Frieze, & Tang, 2010); African-American female college students' decisions to report forced sex (Amar, 2009); and women's decisions to leave violent relationships (Byrne & Arias, 2004; Edwards, Gidycz, & Murphy, 2015). Furthermore, the TPB has been used to understand perpetration of violence against women in studies investigating intimate partner violence (Betts, Hinsz, & Heimerdinger, 2011; Kernsmith, 2005); to measure sexual aggression perpetration (Swartout, Thompson, Koss, & Su, 2015) ; to identify sexual offending etiology in both in adults and adolescents (Miller, 2010); and to predict college male sexual aggression (Kingree & Thompson, 2013). Finally, the TPB can be used within a feminist framework to examine individuals' violence against women (Kernsmith, 2005).

In using the TPB to understand the relationship between rape myths and sexual assault perpetration, it would be expected that rape myth attitudes predict intentions to perpetrate sexual violence (rape proclivity), which in turn would ultimately predict sexual aggression. According to this theory, attitudinal change is a necessary prerequisite for changing behaviors such as sexual violence. For this study, rape myths are the attitudes under investigation as it is hypothesized that eliminating these beliefs is key to reducing sexual violence perpetration. Perceived control of the behavior and perceived social norms regarding sexual violence perpetration are also important precursors of behavior, although they are not included in this study due to lack of data on these variables.

Attitudes indicate the degree to which the behavior is regarded positively or negatively (Humphreys & Brousseau, 2010). Ajzen (2001) describes attitudes as "a disposition to respond favorably or unfavorably to an object, person, institution, or event." (p. 3). In the case of campus sexual violence and rape myths, rape myth beliefs signify the extent to which students regard sexual violence as acceptable, positive, or not acceptable including deciding who is to blame for the sexual violence: the perpetrator or the victim of the sexual violence. Attitudes similar to rape myths were used by Thompson et al. (2011) who found that variables related to the TPB, including attitudes, were predictive of college males' sexual aggressive behavior and mediated other predictive variables. Similarly, Miller (2010) describes "cognitive distortions" (p. 114) that may lead to sexual offending. These findings are in line with research demonstrating that rape supportive attitudes are associated with sexual violence perpetration (Murnen et al., 2002; Tharp et al., 2012).

Summary of Theoretical Frameworks

While this study uses a socioecological framework to examine factors at the peer and individual level that are associated with the perpetration of campus sexual violence, multiple theories are drawn from in order to examine the research questions for this study. Briefly, the socioecological framework can be combined with the theories outlined above in the following manner. First, all-male peer groups, namely fraternities and athletic teams, create mesosystem norms—suggested by the Male Peer Support Theory— that facilitate sexual violence perpetration. Second, within the individual, microsystem, sexual violence might result from gender-role strain that drives men to resolve gender-role stress through committing acts of sexual violence. Additionally, within the individual-level, the TPB explains how attitudes such as rape myth beliefs and intentions such as proclivity to perpetrate sexual violence might then be translated into sexual violence perpetration. The theoretical framework provided in this paper has focused on some of the sociocultural factors that play a role in campus climates that facilitate sexual violence against women. This framework, incorporating meso and microsystem levels and including the external, peer and internal, individual, environment, is needed in order to understand the risk-factors for sexual violence perpetration, and ultimately to prevent sexual violence.

Chapter 3: Paper 1

RAPE MYTH BELIEFS AMONG INCOMING COLLEGE MEN: A LATENT

PROFILE ANALYSIS

By

JULIA O'CONNOR

Manuscript 1 of 3 of a dissertation entitled:

RAPE MYTHS AND PROCLIVITY TO PERPETRATE IN MALE COLLEGE

STUDENTS

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Doctor of Philosophy Graduate School-New Brunswick

Written under the direction of Sarah McMahon

Introduction

Efforts to reduce campus sexual violence have recently been mandated at the federal level (Campus Sexual Violence Elimination Act [Campus SaVE Act]). While there has been an increase in research conducted on prevention programming for college students, much of this research indicates that many programs lack evidence of effectiveness (Anderson & Whiston, 2005; Breitenbecher, 2000; DeGue et al., 2014). Scholars suggest that one issue with current prevention programming is the "one-shot" method that attempts to educate all students about sexual violence in a single session (Anderson & Whiston, 2005; DeGue et al., 2014). These single-session programs are typically directed at the student body as a whole, often during student orientation or other similar sessions. The assumption of this "one-shot" programming is that all students have the same baseline attitudes and beliefs surrounding sexual violence and will benefit equally from prevention messages and training. However, many students enter college with differing levels of understanding and behaviors around various issues such as problems with alcohol (Rinker, Diamond, Walters, Wyatt, & DeJong, 2016) and measures related to sexual violence prevention, including rape myth beliefs (McMahon, 2010; McMahon, Banyard, & McMahon, 2015). As a result, some scholars have called for prevention efforts that are specifically tailored to address students with differing levels of understanding on issues surrounding sexual violence (Anderson & Whiston, 2005; Banyard, 2014).

In order to tailor prevention programming to students with differing baseline beliefs, it is important to first identify which beliefs linked with perpetration of sexual violence should be targeted for modification in order to prevent sexual violence. A wide

array of attitudes and beliefs are linked to the perpetration of sexual violence including hostility towards women or hostile sexism (Canto, Perles, & San Martin, 2014; Murnen & Kohlman, 2007; Russell & King, 2016; Suarez & Gadalla, 2010) and rape myths (Davis, Danube, Stappenbeck, Norris, & George, 2015; DeGue & DiLillo, 2004; DeGue et al., 2010; Kingree & Thompson, 2015; Lanier, 2001; Murnen & Kohlman, 2007; Russell & King, 2016; Widman et al., 2013; Yapp & Quayle, 2018). Some researchers have suggested that rape myth attitudes are a direct risk-factor for sexual assault perpetration (DeGue et al., 2014; Kingree & Thompson, 2015; Young, Desmarais, Baldwin, & Chandler, 2016) including a systemic review of studies examining rape myths and perpetration of violence against women (Yapp & Quayle, 2018). Rape myths are beliefs about victims, perpetrators or acts of sexual violence that misattribute the responsibility for sexual violence, diverting it away from perpetrators and onto the victims. These types of beliefs are commonly held among college students, although at varying levels. For example, Aronowitz, Lambert, and Davidoff (2012), in a random sample of college students, found that nearly two out of three (63%) believed the myth that if a woman makes out with a man, her action licenses the man to push for sex. A lesser percentage of students (23%) believed that the myth that forced sex is a "turn-on." Additionally, studies have indicated that demographic factors influence rape myth beliefs, with male students having higher rape myth beliefs rates (Suarez & Gadalla, 2010) as do members of all-male peer groups (Murnen & Kohlman, 2007).

Because of the association with sexual violence perpetration, the reduction of rape myth beliefs is often an outcome targeted in prevention programming (for reviews of sexual assault prevention programing with rape myth measures see (Breitenbecher, 2000;

Katz & Moore, 2013; Vladutiu, Martin, & Macy, 2011). However, research examining

these beliefs generally uses methods that do not allow for examination of subgroups of

students with differing types and levels of rape myth beliefs. Person-centered statistical

analysis techniques allow researchers to understand how individuals differ across

variables, such as rape myth beliefs. Such analysis techniques are particularly useful in

analyzing constructs related to sexual violence perpetration (Nurius & Macy, 2008;

Swartout & Swartout, 2012). Despite the large body of research examining rape myth

beliefs, these beliefs have never been analyzed using person- centered methods that might

demonstrate a range of individual differences among students who endorse differing

types of rape myths and at varying levels of endorsement. Through a person-centered

analysis, this study will explore rape myth beliefs among male students entering college

in order to understand how beliefs may differ among subgroups of students. Ultimately,

this examination will help inform efforts to tailor prevention toward groups of students

who hold differing baseline levels of rape myth beliefs.

Rape Myth Beliefs

First established as a concept in the 1970s (Brownmiller, 1975; Burt, 1980b), rape

myth beliefs are hypothesized to serve as a justification by perpetrators of sexual violence

for their actions or as "psychological neutralizers" that allow perpetrators to overcome

mental barriers against committing sexual violence (Bohner et al., 1998; Burt, 1980b).

Burt (1980), in her seminal work on developing rape myth beliefs as a construct, defined

them as "prejudicial, stereotyped, or false beliefs" (p. 217) and grouped them into three

categories, those about the: 1) perpetrators of sexual violence; 2) victims of such

violence; and 3) acts of sexual violence. Rape myths about the perpetrator include the

idea that those who commit sexual violence cannot help themselves, often because they were drinking alcohol. Subscales that attempt to capture these beliefs include *He Didn't Mean To* and *Intoxicated, He Did Not Mean To Due To* (McMahon & Farmer, 2011; Payne et al., 1999). The next set of rape myths center on the victim suggesting she was at fault, wanted the assault, or lied about the assault. S*he Asked for It*; *She Wanted It*; and *She Lied* are the subscales that have been developed to measure these types of rape myths (McMahon & Farmer, 2011; Payne et al. 1999). Finally, rape myths dealing with the sexual assault act either trivialize the rape or minimize it through the myth that "real rape" is always violent and extreme. Researchers use three subscales to measure rape myths in this category including: *Rape Is a Trivial Event*; *Rape Is Deviant Event* and *It Wasn't Really Rape* (McMahon & Farmer, 2011 Payne et al. 1999).

Rape myths have been linked to a sexual violence perpetration, both directly and through their association with other attitudes and beliefs related to sexual violence. Overall, researchers have found that men adhere to rape myth beliefs more strongly than women (Carroll et al., 2016; Diamond-Welch, Mann, Bass, & Tollini, 2017; Hayes et al., 2016; Stoll et al., 2017; Suarez & Gadalla, 2010). In the earliest study of rape myths using current measures, Burt (1980) found that sexually aggressive men had higher rates of rape myth beliefs than men who were not sexual aggressive. These findings have been replicated in a number of studies linking sexual aggression and coercion with rape myth beliefs (DeGue & DiLillo, 2004; DeGue et al., 2010; Murnen & Kohlman, 2007; Russell & King, 2016). In a review article, Tharp et al. (2012) found that 86% of articles reviewed on sexual violence perpetration, reported an association between perpetration and endorsed rape myths. An updated review on this topic, which included recent peer-

reviewed studies from 2008 to 2016, found that of nine studies examining the association

between rape myths and sexual violence perpetration, 89% reported an association

between the constructs (Yapp & Quayle, 2018). These findings suggest that rape myths

are important attitudes to target in sexual violence prevention programming that attempts

to reduce perpetration rates.

      Rape myth beliefs measurement. Research on rape myth beliefs has

traditionally analyzed these beliefs as a monolithic construct. Given the wide variety of

types of beliefs that rape myths encapsulate, some researchers argue that rape myths are

multidimensional and as such should be measured with subscales that capture the

multiplicity of the types of existing rape myth beliefs (Lonsway & Fitzgerald, 1994;

McMahon & Farmer, 2011). Even when subscales have been used in research, few

scholars have examined differential rape myth subscale endorsement and its implications.

However, rape myth subscales may be useful in distinguishing differing types of myths

that call for tailored prevention interventions. For example, two college students may

have similar overall rape myth beliefs levels and yet vary vastly on the individual types

of rape myths (subscales) they endorse. One participant might strongly endorse the

subscale *He Did Not Mean to,* while another might strongly endorse *She Lied* as a rape

myth. These are both rape myth beliefs, yet the types of interventions used to target these

beliefs may differ, with one targeting a myth about perpetrators' intentions and another

targeting the belief that many women falsely accuse men of rape.

      Despite calls for research on how individual rape myth subscales might relate to

sexual violence perpetration (Mouilso & Calhoun, 2013), differences in the types of

endorsed rape beliefs are not commonly examined. There are a few notable exceptions.

Carroll et al. (2016) examined how two samples differed on individual rape myths items in order to understand differences in the samples by types of rape myths. In two separate studies, McMahon examined rape myth subscale endorsement by students, finding differences among the subscales (McMahon, 2010, 2015b). Finally, Sleath and Bull (2015) compared police officers to students on endorsement of rape myth subscales and found differential rape myth subscale endorsement on three subscales. Other researchers (Powers et al., 2015) have found differences on rape myths subscales, suggesting differences in the types of rape myths endorsed and associated outcomes, but they did not examine differential implications or interventions suggested by endorsement of different myths.

Person-Centered Analysis

Latent class/profile analysis methods are types of person-centered analyses that have generated growing interest among prevention researchers due to their ability to identify differing subgroups of the population who may respond differently to prevention efforts, requiring more tailored efforts (Collins & Lanza, 2010; Lanza & Rhoades, 2013). Latent profile and class analysis methods are classified as "person-centered," in contrast to more traditional "variable-centered" methods. Person-centered methods examine differences between individuals and assume heterogeneity within the population, while variable-centered methods examine associations between variables that are assumed to be uniform across the population (Masyn, 2013). To this point, there has been no research examining rape myths through a person-centered approach; yet, we can assume that rape myth beliefs are not homogenous across populations. The use of a person-centered approach necessarily involves the assumption that rape myth beliefs are not uniform

across a population and allows researchers to explore meaningful differences in rape myth beliefs among subgroups. This type of analysis can expand our understanding of the variability of rape myth beliefs within populations by rejecting previously made assumptions that these beliefs are uniform across populations.

Latent class or profile models have been used to study several facets of violence against women including sexual violence (Holt et al., 2016; Macy, Nurius, & Norris, 2007; Masters et al., 2015; Swartout, Swartout, & White, 2011; Troche & Herzberg, 2017). These models have also been used to study perpetration of sexual violence (Jewkes & Morrell, 2017; Logan-Greene & Davis, 2011; Swartout, Swartout, et al., 2015; Thompson, Kingree, Zinzow, & Swartout, 2015). Additionally, several well-regarded researchers have argued that person-centered analysis is particularly well-suited to studying issues of violence (Nurius & Macy, 2008; Swartout & Swartout, 2012), including risk-factors related to perpetration. While there is growing evidence that person-centered techniques are useful in studies of sexual violence perpetration and related attitudes, such methods have never been used to examine rape myths. Specifically, as attitudes differ between students entering into college, a time when sexual violence rates peak (Cranney, 2015; Flack et al., 2008), a person-centered analysis of individual differences among male students on rape myths could help inform efforts to reduce sexual violence rates on campus.

Current Paper and Research Questions

Despite the strong association between rape myths and sexual violence perpetration, indicating that prevention programming should target such attitudes, there are several gaps with the existing research in this area. First, with a few exceptions, rape

myths have been viewed as a monolithic construct with little attention paid to the differences in varying types of rape myth beliefs (measured through subscales). Second, researchers have used variable-centered analyses to look at rape myths. Such analysis does not account for individual-level differences between respondents, and instead presupposes homogeneity of rape myth beliefs across respondents. These assumptions do not account for variation among subgroups of students, with differing levels and types of rape myth beliefs, an understanding of which could guide efforts to tailor interventions differently based on baseline beliefs. The current study will address gaps in the research by conducting a person-centered analysis on rape myth subscales. This study will address the following research questions:

1) Are there meaningful patterns across individuals in terms of the types (subscales) of rape myths they endorse?

2) If there are meaningful patterns across individuals, how can male college students be categorized into profiles based on the type of rape myths individuals endorse?

3) What are the characteristics of the subgroups of male college students related to intention to join an all-male peer groups?

Methods

Procedures

The data for this study come from larger longitudinal study at a public university in a Mid-Atlantic state of the United States. Only the first wave of data from the parent study was used in the current paper, as the analysis methods employed (latent profile analysis) are designed to be conducted on a single wave of data. The purpose of the parent study was to test a peer theater program in relation to campus sexual violence and

prosocial bystander measures. As part of the study, after the first wave of data collection, participants viewed the peer theater presentation about campus sexual violence, and were then randomized into groups. The current analysis is based on data collected prior to their viewing of the peer theater program. The parent study was approved at the time of data collection by the university's Institutional Review Board (IRB). (For a full description of the methods and the procedures intervention, see McMahon and colleagues, (2015).

Participants

Between June 2010 and August 2010, incoming first-year students were invited to participate in the parent study. The first wave of data collection occurred at new student orientation sessions. Students who participated were entered into a raffle for a television or iPad. At that time, along with an informed consent form, students completed an anonymous pre-intervention survey. Participants created their own unique identification code in order to collect data anonymously.

The final dataset for the parent study included 1,390 participants over six time periods (see McMahon et al., 2015 for more information on how the sample was derived). Only one wave, the baseline wave, of the dataset is used in the current analysis. Of the 1,390 participants, 513 identified as men. As the focus of this study is on risk of perpetration and as most sexual assault is perpetrated by men (Cantor et al., 2015; Krebs et al., 2016), only the male sample was used for this study. Of these male participants, 49% identified as White, 34% as Asian, 7% as Latino, 4% as Black, and 7% as another race or ethnicity.

Measures

Rape myth beliefs. This study used a modified 17-item version of the Illinois Rape myth beliefs Scale (Payne, Lonsway, & Fitzgerald, 1999). Participants indicated agreement on a 5-point scale. On questions such as "If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped," response options ranged from *1 (Strongly Disagree)* to *5 (Strongly Agree)*. Items were reverse coded as needed so higher scores indicate higher rape myth beliefs. This version of the scale was created to capture subtle rape myths, including those more likely to be endorsed among college students, and focuses on victim blaming and rape accountability (McMahon & Farmer, 2011). A five-factor solution was found in a prior confirmatory factor analysis. The following five factors were found*: 1) RM 1: She Asked for It* (4 items α = .70 at T1)*; 2) RM 2: Was Not Really Rape* (3 items α = .77)*; 3) RM 3: Intoxicated, He Did Not Mean to Due* (2 items α = .64)*; 4) RM 4: He Did Not Mean to* (3 items α = .66)*;* and *5) RM 5: She Lied* (5 items α = .81)*.* The fit for this model was acceptable: RMSEA = .059; CFI = .923; TLI = .897) (T. A. Brown, 2006). The current study uses these subscales scores.

Fraternity and athletic team membership. This study measured intention to join a fraternity through a yes/no question asking participants if they intended to pledge a fraternity in college. Men's athletic team participation was gauged in the same method as fraternity participation with a question asking if students intended to join an athletic team while at the university.

Analysis

The purpose of this study was to perform latent profile analysis (LPA) on the rape myth beliefs subscales in order to derive the profiles corresponding to the patterns in the

data and demonstrate the prevalence of each profile within the sample. Five subscales of

the rape myth beliefs scale were used to examine patterns of subscale endorsement. LPA

tests a series of models with differing numbers of profiles or classes, starting with one

class and increasing the number of latent classes in each model. A final model was

selected based on fit criteria, when compared to previous models, and data fit to the

model. LPA was performed with Mplus Version 8.0 (Muthen & Muthen, 2017), using

full-information maximum likelihood estimation to identify models that best fit the data.

As recommend by Masyn (2013) four types of models were run: 1) A diagonal

(restricted) and class-invariant model; 2) a non-diagonal (non-restricted) and class-

invariant model; 3) a diagonal (restricted) and class-varying model; and 4) a non-diagonal

(non-restricted) and class-varying model. Model types 3 and 4 did not converge but

model types 1 and 2 were run for a one-class up to a nine-class solution.

Fit criteria were used to compare model fit. These fit criteria included 1) the

Akaike's information criterion (AIC); 2) the Bayesian information criterion (BIC); 3) the

consistent Akaike's information criterion (CAIC); and 4) the approximate weight of

evidence criterion (AWE). For all of these criteria, the lowest value indicated the best

fitting model, or in cases when the value(s) only continued to decrease with each model,

the best model was that in which the magnitude in the difference between values of two

models was the smallest indicating a decreasing gain for each class added (Masyn, 2013).

Other indices used to guide model selection included that where each model is compared

to the prior model (e.g., a 3-class model is compared to a 2-class model) and a

statistically non-significant p-value indicated a better model fit. These tests included: 1)

the adjusted Lo–Mendell–Rubin likelihood ratio test (LMRT); and 2) the parametric

bootstrapped likelihood ratio test (BLRT). The Bayes factor (BF), the correct model probability (cmP), and the entropy value was also examined. Values of 10 or greater for the BF and over 1 for the cmP indicated better model fit. While values close to 1 for entropy suggested well-separated classes, models with low entropy values may still fit the data well (Masyn, 2013). Finally, LPA required a qualitative analysis of the best model in terms of parsimony for ease of interpretation and theoretical determination of how the profiles could be interpreted, labeled and distinguished from each other (Collins & Lanza, 2010; Lanza & Rhoades, 2013).

After the latent profiles were identified, two covariates, intention to join a fraternity and intention to join an athletic team, were entered into the model to conduct multinomial logistic regression analysis using the recommended three-step approach (Asparouhov & Muthén, 2014; Vermunt, 2010). The purpose of this analysis was to identify logistic regression coefficients for all covariates in each latent profile compared to the reference latent profile (profile 1 in this case, the largest profile). This three step approach was recommended as it helps protect against the profiles being unintentionally influenced by covariates as they were entered into the model (Asparouhov & Muthén, 2014; Nylund-Gibson & Masyn, 2016; Vermunt, 2010).

Results

Descriptive Statistics

Table 2 shows the descriptive characteristics of the sample, including race and the percentage who intended to join a fraternity (33%) and intended to join an athletic team (60%). Table 2 also includes the descriptive statistics for the five rape myth subscales included in this analysis. The subscale with the highest mean score was *RM 4: He Did*

Not Mean to (*m*=3.1) while, the lowest mean score was for *RM 2: Was Not Really Rape* (*m*=1.8).

Table 2: Descriptive statistics of the sample and for rape myth subscales (*n*=513)

Variable	Percentage/ Mean	*SD*
Intent to join a fraternity	33.3	
Intent to join an athletic team	59.6	
Race/Ethnicity		
White	48.6	
Asian	33.8	
Other	7.0	
Latino	6.6	
Black	3.9	
Rape Myth		
1: She Asked For It	2.9	0.8
2: Was Not Really Rape	1.8	0.8
3: Intoxication, Did Not Mean To	2.0	0.9
4: Did Not Mean To	3.1	0.9
5: She Lied	3.0	0.7

Number of Latent Profiles

LPA was used in this study to identify classes/profiles associated with rape myth subscale endorsement using the five subscales including: 1) *RM 1: She Asked for It; 2)*

RM 2: Was Not Really Rape; 3) RM 3: Intoxicated, He Did Not Mean to; 4) RM 4: He Did Not Mean to; and *5) RM 5: She Lied.* Table 3 presents the fit indices for the solutions fitted for a non-diagonal (unrestricted)/class-varying model. Candidate solutions from the diagonal (restricted)/class-varying model models were also examined, but the candidate non-diagonal (unrestricted)/class-varying models were found to be a better fit to the data in terms of ease of interpretation and consistent fit indices. As such, only the non-diagonal (unrestricted)/class-varying model solutions are shown in Table 3.

The fit criteria did not indicate a clear best model but instead, several different models were suggested as a good fit to the data. For the AIC, BIC, and CAIC, the values fluctuated, first decreasing and then increasing slightly and then decreasing again. The point at which the values first decreased before increasing again are bolded within Table 3. The AIC first decreased at a 5-class solution while the BIC and CAIC decreased at a 4-class solution. The lowest value for the AWE was a 2-class solution.

Table 3: Fit Indices for Latent Profiles.

Model	LL	n-par	AIC	BIC	CAIC	AWE	Adj LMR p-value	BF (K, K+1)	Entropy
1	-2902.33	20	5844.65	5929.38	5949.38	6114.11	0.02	<.01	
2	-2854.85	26	5761.71	5871.85	5897.85	**6112.00**	0.00	<.01	0.99
3	-2813.00	32	5690.00	5825.56	5857.56	6121.12	**0.52**	<.01	0.87
4	-2788.37	38	5652.73	**5813.71**	**5851.71**	6164.69	0.59	**>10**	0.86
5	-2772.16	44	**5632.31**	5818.71	5862.71	6225.11	0.39	<.01	0.87
6	-2738.99	50	5577.98	5789.79	5839.79	6251.61	0.98	>10	0.92
7	-2726.92	56	5565.83	5803.07	5859.07	6320.30	0.68	<.01	0.87
8	-2691.2	62	5506.40	5769.05	5831.05	6341.71	0.60	1	**0.94**
9	-2681.29	68	5498.58	5786.65	5854.65	6414.72	0.61	0	0.92
10	Not well-identified								
11	Not well-identified								

Bolded values indicate the best value with the fewest number of profiles/classes; outline values are the best value for profile selected

for this study.

For all four of these criteria, line graphs of the values were also examined for an "elbow" (or point at which the values appear to level off with decreasing gains [reductions in criteria values]) from adding additional classes (Masyn, 2013). No clear pattern appeared from the examination of these graphs although the BIC and CAIC had several clear dips in the values at the 4, 6, and 8-class models.

Additional indicators of model fit also did not point to a single best model. The Adjusted LMR p-value reached non-significance at a 3-class model, indicating that any model of three or more classes fit the data better than prior models. The BLRT reached a value of 1 at the 6-class model. The BF value was 10 for both the 4- and 6-class solutions. Finally, the cmP value never reached above a value of 1 but, at the 6-class model, the value increased closer to one compared to prior models. Finally, although not used in model selection, the entropy value was the highest for the 8-class model. The final factor in determining the best model was class size and interpretation of the number of classes. Classes with a small percentage of the sample, or small sample size, may indicate class over-extraction and a breaking-down the of models (Masyn, 2013). For all models with five or more classes, the percentage of the sample in some of the classes decreased drastically, perhaps indicating class over-extraction. For example, although the 6-class model was indicated as the best model by a number of criteria, this model had a class with 1% of the sample and others with 2% and 4% of the sample. For this reason, the 6-class and similarly 5-class model was rejected. A 4-class model was selected based on the criteria of the BIC, CAIC and BF (these values are outlined in Table 3) and because only a single class had a smaller percentage (2%) of the sample. This was deemed acceptable as the 4-class model, when compared to the next most parsimonious

model, the 3-class model, added a "hidden class" of participants whose response patterns were not seen in the 3-class model. The "hidden class" may represent a significant class not seen in other models yet worthy of further investigation based on the unique profile and despite the small size.

Latent Profile Characteristics

As seen in Table 4 and Figure 2, each of the four profiles of the selected 4-class model are distinguished by differing mean scores on the five rape myth subscales (highest mean scores for each subscale are bolded). Additionally, Table 4 shows the average posterior class probabilities for most likely class membership by profile. Values bolded on the diagonal are all above .8, indicating adequate separation and classification precision (Nagin & Tremblay, 2005).

Table 4: Four-profile model class prevalence, size, results (means and standard deviations) and classification probabilities.

Variable	Profile 1: Low RMs		Profile 2: Medium RMs		Profile 3: High Specific RMs		Profile 4: High RMs	
Class prevalence	50%		34%		2%		15%	
Estimated class sizes	254		174		8		75	
RM1_SAFI	2.70	(0.08)	3.04	(0.07)	2.90	(0.55)	**3.36**	(0.10)
RM2_WNRR	1.15	(0.05)	1.98	(0.09)	**4.81**	(0.25)	2.98	(0.11)
RM3_IDNMT	1.73	(0.08)	2.22	(0.09)	**3.67**	(0.32)	2.53	(0.11)
RM4_DNMT	2.97	(0.08)	3.19	(0.11)	3.04	(0.23)	**3.42**	(0.10)
RM5_SL	2.81	(0.05)	3.19	(0.06)	2.91	(0.44)	**3.45**	(0.08)
Profile 1	**0.97**		0.03		0.00		0.00	
Profile 2	0.13		**0.85**		0.00		0.02	
Profile 3	0.00		0.00		**1.00**		0.01	
Profile 4	0.00		0.08		0.00		**0.92**	

Estimated means and standard deviations on each subscale for each profile are provided. Average posterior class probabilities for most likely class membership by profile are provided.

RM1_SAFI   =   Rape Myth 1: She Asked for It

RM2_WNRR   =   Rape Myth 2: Was Not Really Rape

RM3_IDNMT   =   Rape Myth 3: Intoxication, Did Not Mean To

RM4_DNMT = Rape Myth 4: Did Not Mean To
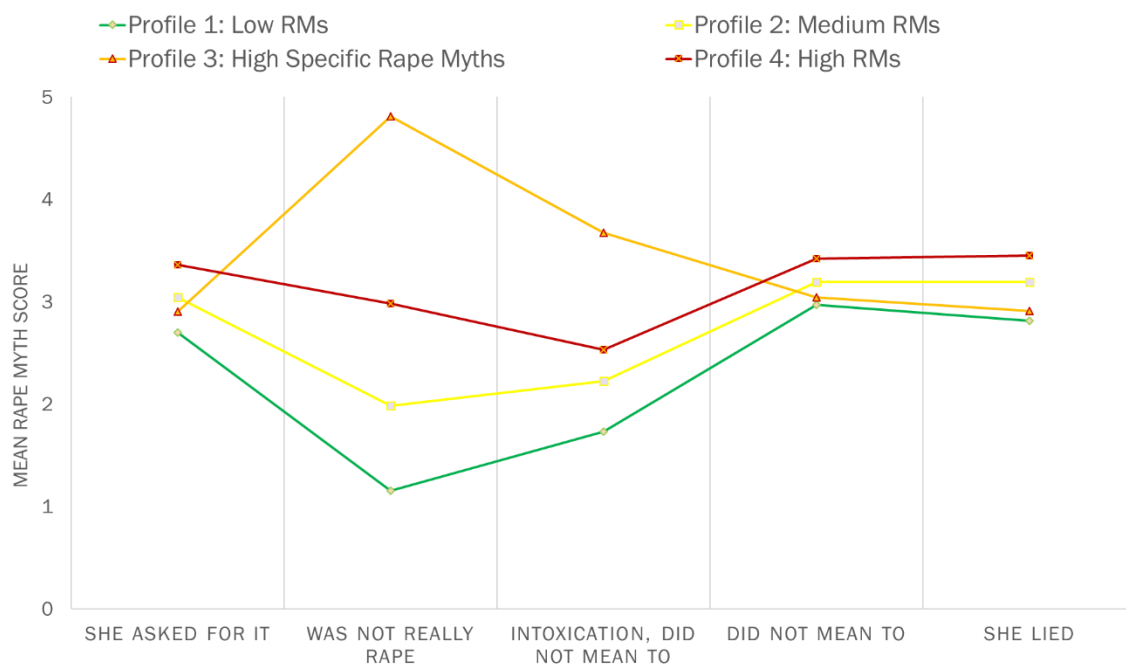
RM5_SL = Rape Myth 5: She Lied

Figure 2: Four Class Model Mean Rape Myth Scores

Class 1 (Low Rape Myths; 50% of the sample; n=254). This class, or profile, is made up of male students who have the lowest mean scores on all the five rape myth subscales across all four classes, meaning a low endorsement of rape myth beliefs. Students with this profile have lower mean scores, compared to the other classes, on each and every subscale of the rape myth scale as seen in Figure 2, and all mean scores are below the midpoint of the scale (3). One in two students (50%) within this sample were assigned to this class, representing the most common participant profile.

Class 2 (Medium Rape Myths; 34% of the sample; n=174). Participants with this profile had mid-range mean scores on the rape myth subscales. All mean scores were higher than those in *Class 1, Low Rape Myths* while three subscales (*RM 1, She Asked for It; RM 4, Did Not Mean to*; and *RM 5, She Lied*) were higher than those in *Class 3, High Specific Rape Myths,* but lower than *Class 4, High Rape Myths*. All of these rape myth subscale means scores were near to the midpoint of the scale (3). The two other rape myths subscales (*RM 2, Was Not Really Rape* and *RM 3, Intoxicated, Did Not Mean to*) were lower than Class 3 and 4. One in three (34%) participants fell into this class.

Class 3 (High Specific Rape Myths; 2% of the sample; n=8). Students with this profile had mid-level scores (similar to, although slightly lower than, *Class 2, Medium Rape Myths*) for three of the five rape myth subscales (*RM 1, She Asked for It; RM 4, Did Not Mean to*; and *RM 5, She Lied*). Because the means scores on these three subscales were between Class 2 and Class 1 (see Figure 2), these were not the distinguishing rape myth beliefs for participants in this group. Instead, participants in this class had much higher scores, compared to all other classes, on two rape myth subscales: *RM 2, Was Not Really Rape* and *RM 3, Intoxicated, Did Not Mean to,* making these the distinguishing beliefs for

this class. Although the rarest profile of participants, representing only 2% of the sample, participants with this profile had the highest subscale means scores of all the classes for any rape myth subscale. This is particularly true for the mean score for *RM 2, Was Not Really Rape* (*m*=4.81) which was near to the end point on this scale (5), indicating an elevated level of endorsement of *RM 2, Was Not Really Rape.*

Class 4 (High Rape Myths; 15% of the sample; n=75). Participants with this profile had the highest scores on all rape myths subscales except the two discussed for *Class 3, High Specific Rape Myths.* For *RM 1, She Asked for It; RM 4, Did Not Mean to*; and *RM 5, She Lied*, participants in this class had high scores above the mid-level values for the scale (3). For the other two rape myth subscales, *RM 2, Was Not Really Rape* and *RM 3, Intoxicated, Did Not Mean to,* only Class 3 had higher scores. Overall, students with this profile had the highest levels of rape myths except compared to the elevated rates of rape myth subscale endorsement for specific subscales seen in Class 3. Fifteen percent of the sample fell within this class of students with high levels of rape myth beliefs.

Latent Profile Covariates

The last research question asked if profile membership for the subgroups was related to membership in all-male peer group. Neither intention to join a fraternity nor intention to join an athletic team were significantly related to membership in the rape myth profiles (p >.1).

Discussion

The results of this study demonstrate heterogeneity among male college students on their rape myth beliefs. Specifically, four profiles of rape myth beliefs were identified with varying levels of rape myth beliefs. Representing 50% of the sample (n=254), men

in *Class 1, Low Rape Myths* had the lowest level of rape myth beliefs. A third of the all

the participants (n=174) fell into *Class 2, Medium Rape Myths* and tended to have

moderate levels of rape myth beliefs. Participants in *Class 3, High Specific Rape Myths*

were rare (2% of the sample; n=8) but had extreme levels of rape myth beliefs on two of

the five rape myths subscales (*RM 2, Was Not Really Rape a*nd *RM 3, Intoxicated, Did

Not Mean to*). The final class, *Class 4, High Rape Myths*, generally had the highest levels

of rape myth beliefs and made up 15% of the sample (n=75).

As indicated in this study, some men endorse rape myths at higher rates than

others. Examination of *Class 3, High Specific Rape Myths* and *Class 4, High Rape Myths,*

suggests that some subsets of male college students have elevated and problematic levels

of rape myth beliefs. Students within classes 3 and 4 had rates of rape myth beliefs, near

or at the midpoint of the scale on nearly every subscale (the exception being men in *Class

4, High Rape Myths* who had a mean score of 2.53 on the subscale of *Intoxicated, Did

Not Mean to*). Compare this to the men in *Class 1, Low Rape Myths,* who scored below

the midpoint of scale on all subscales of the rape myth scale. While those in *Class 4,

High Rape Myths,* had overall higher rates of rape myth subscale endorsement, men in

Class 3, High Specific Rape Myths, were notable for their elevated, and perhaps

problematic levels of endorsement on two subscales: *RM 2, Was Not Really Rape* and *RM

3, Intoxicated, Did Not Mean to*, indicating a concerning pattern with men in this

subgroup in terms of these particular rape myths. Interestingly, proportionally, this class

was very small indicating that while men in this subgroup have problematically high

levels of the beliefs *Was Not Really Rape* and *Intoxicated, Did Not Mean to*, these

individual are not the among the majority of the population. Notably, the class with the

largest percentage of the sample was *Class 1, Low Rape Myths* indicating that half of the men within this sample, while still endorsing rape myths, do so at lower rates and thus, might not need as intensive interventions as other subgroups in order to address and correct rape myth beliefs.

As is clear by now, the findings of this study indicate a heterogeneity in rape myth beliefs among college men. While rape myth beliefs in general are concerning and associated with sexual violence perpetration (Davis et al., 2015; DeGue et al., 2010; Russell & King, 2016; Thompson et al., 2015; Widman et al., 2013; Yapp & Quayle, 2018), this study suggests wide variation in the levels and types of rape myths that are endorsed by college men. While most studies have examined only mean scores of rape myth beliefs, which do not account for subgroups with differing levels of endorsement, some scholars have examined subscale differences, suggesting the importance of differing types of rape myths (Carroll et al., 2016; McMahon, 2010, 2015b; Sleath & Bull, 2015). These finding may be the tip of the iceberg in studying differences in rape myth type. The current study builds on this work thorough suggesting differing profiles of rape myth belief among subsets of a sample of college men.

Limitations and Future Directions

While this study is the first of its kind to use LPA to examine rape myth beliefs, it is not without limitations. During the LPA, no single best model emerged. Instead several good candidate models emerged. First, the selection of the four profile model as outlined in this paper does not represent the absolute best fit to the data, but, rather a good fit that is useful for interpretation and in which none of the identified subgroup of men contain less than 1% of the sample. Relatedly, while no single profile contained less than 1% of

sample, Profile 3 only contained 2% of the sample population. While both 3-class and 4-class models were identified as potential candidate models, of these two models, only the 4-class model contained a profile with such a small percent of the sample and thus, perhaps it could be argued that a 3-class model was preferred. However, the 4-class model was indicated as the best model based on a number of fit indices and Profile 3, with 2% of the sample population, presented a "hidden class" not seen in the 3-class model. This small class was substantially different from the other classes and while small, it may represent an important group of men with high specific rape myth beliefs worthy of further intervention and unique in that men within this subgroup endorse only specific rape myths beliefs at higher rates.

Second, the findings from this study do not support the hypothesis that subgroups of men, based on their rape myth beliefs, are differentially associated with intention to join a fraternity or intention to join an athletic team. While some research indicates that members of all male-peer groups are more likely to endorse rape myths (Murnen & Kohlman, 2007), there have been contrary findings in this area. A few studies suggest that fraternity men do not differ from other men on attitudes associated with sexual assault (Corprew & Mitchell, 2014), use of technology-based sexual coercion (Thompson & Morrison, 2013), or sexual aggression (Koss & Gaines, 1993). Likewise, research on athlete status and sexual violence perpetration is mixed. Several research studies found no association between athletic team membership and sexual aggression perpetration (Boeringer, 1996; Thompson & Morrison, 2013). Additionally, this study examined intention to join an all-male peer group, and not actual membership in such groups. Similarly, rape myth beliefs were measured for incoming students, before they had a

chance to actually be students at the university, and thus does not reflect views that have been shaped by the university experience.

Third, the measure to gauge rape myth beliefs was a self-report scale asking about attitudes generally known to be socially unacceptable, thus subjecting them to social desirability biases. Students may know that rape myth beliefs are not socially acceptable, although widely held and perhaps held by participants themselves, and misrepresent their own views on the survey items accessing rape myth attitudes. That being said, the measures rape myths beliefs are widely used by scholars and have been in existence for several decades. Finally, a number of participants were not included in the final dataset due to matching issues (see McMahon et al, 2015) and the participants included within this study may differ from those whose data were excluded.

The limitations of this study suggest several potential areas for future research. First, the results of this research need to be replicated with other samples. This sample for this study was limited to men entering college but, women can also endorse rape myths. It would be beneficial to conduct LPA on all college students, including men and women, to see if the results remain consistent to those found here, or if the results differ by gender. Likewise, the non-significant results related to all-male peer groups need to be examined in other samples to see if these results can be replicated. Second, this study used five subscales of the rape myth belief scale as identified by McMahon and Farmer (2011) but other validated versions of the rape myth scale exist (Payne et al. 1999). It would be interesting to see if the profiles identified within this study could be replicated using other rape myths scales that contain different types of rape myths (aka, subscales). Finally, this study took an initial step in using person-centered methods to examine rape

myth beliefs by employing LPA to investigate subgroups of men with differing beliefs.

However, these subgroups warrant further examination to determine what variables are

associated with distal outcomes that might be predicted from being a member of each

subgroup. Through these type of analyses, researchers can begin to understand not only

what subgroups of college students look like in terms of rape myth beliefs but also what

factors are associated with these subgroups including constructs that might inform efforts

to reduce rape myth beliefs among male college students.

Implications

While prevention efforts are mandated on college campuses as a means of

addressing sexual violence, thus far, efforts addressing perpetration have largely shown

to be ineffective (DeGue et al., 2014), and often any positive results from prevention

trainings dissipate over time (Breitenbecher, 2000). However, scholars and preventionists

indicate that primary prevention efforts should focus on "upstream" factors, those farther

removed from the direct incident of sexual violence (e.g., alcohol use), related to sexual

violence including men's attitudes and beliefs related to sexual violence perpetration

(Basile et al., 2016; DeGue et al., 2014). Additionally, there are growing calls to tailor

prevention effort to groups of students who may need differing levels of intervention

(Anderson & Whiston, 2005; Banyard, 2014). It is possible that the general lack of

effectiveness seen in sexual violence prevention programming might be reflective of

"one-shot" programming that does not include tailored messaging and prevention efforts

for students of varying levels of beliefs associated with committing sexually violent acts.

The results from this study suggest that rape myth beliefs might be used in efforts to

tailor programming in that some subgroups of men with higher levels of rape myth

beliefs could receive differential preventative programming focused specifically on lowering rape myth beliefs.

Due to the association between rape myth beliefs and perpetration of sexual violence, it could be that subgroups of men with elevated level of rape myths on some or all of the subscales/types of rape myth represent a group worthy of greater levels of intervention in order to target their high levels of rape myth beliefs. Men in *Class 4, High Rape Myths* and in *Class 3, High Specific Rape Myths,* while together only represent 17% of the sample, had the highest mean scores on all subtypes of the rape myth subscales. This suggests that these men might be targeted for a more intense intervention to lower their problematic levels of rape myth beliefs. Men within *Class 3, High Specific Rape Myths* might be specifically targeted for their beliefs surrounding *Intoxicated, He Did Not Mean to* and *Was Not Rape* to concentrate on the extreme level of these beliefs within this subgroup. Likewise, *Class 4, High Rape Myths* with higher levels of rape myth beliefs overall and specifically higher levels of the remaining three subscales of rape myths, *She Asked for It, Did Not Mean to,* and *She Lied,* might be the target of programming to specially debunk these rape myths.

Although the idea of tailoring prevention efforts has been suggested by scholars in the past (Anderson & Whiston, 2005; Banyard, 2014), generally specific ideas for how to provide tailored intervention have not been articulated. How might a large university with hundreds to thousands of students implement a tailored programming? College administrators must consider a training that is both feasible and cost effective to rollout at scale. Although the logistics of such tailored trainings are not the focus of this paper, newer technologies might suggest a partial answer to these questions and concerns.

Nationwide, universities have started implementing online prevention programming with students (Zapp, Buelow, Soutiea, Berkowitz, & DeJong, 2018), often using premade packaged programs offered by Everfi or Haven. Such online programming might present a simple and cost-effective method of tailoring programming towards students with varying risk-factors, including rape myth beliefs. These programs have built in pretest/posttest programming through which attitudes and beliefs could be measured in order to assess problematic beliefs and provide tailored programming targeting specific rape myths as indicated by the pretest assessment. Clearly, this is an area that requires further investigation to determine feasibility and effectiveness. However, such platforms might offer one solution to the issues of feasibility and cost associated with offering tailored trainings to college students.

Conclusion

This study demonstrates that men entering into college hold varying levels of rape myth beliefs that can classify men into four classes based on their beliefs, with some subgroups endorsing lower or medium levels of rape myths and others endorsing higher levels of some or all of the rape myths. The demonstrated heterogeneity of rape myth beliefs held by college men in this study suggests that targeting rape myths continues to be important in campus sexual violence prevention efforts. Furthermore, tailored interventions targeting specific subgroups of men with problematic levels of rape myth beliefs might improve prevention outcomes and ultimately reduce these problematic beliefs among these men with elevated rates of rape myth beliefs.

Acknowledgments

Chapter 4: Paper 2

PROFILES OF MEN'S RAPE MYTH BELIEFS AND RAPE PROCLIVITY

By

JULIA O'CONNOR

Manuscript 2 of 3 of a dissertation entitled:

RAPE MYTHS AND PROCLIVITY TO PERPETRATE IN MALE COLLEGE

STUDENTS

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Introduction

Campus sexual violence is a well-documented problem nationwide, with nearly 20-35% of men likely to perpetrate sexual violence in college (Abbey et al., 1998; Koss et al., 1987; Thompson et al., 2013; Zinzow & Thompson, 2015a). In an attempt to reduce these rates, a number of prevention efforts have been implemented on campuses nationwide. However, most prevention programs targeted at potential perpetrators have not demonstrated effectiveness at reducing rates of sexual violence (DeGue et al., 2014). This lack of effectiveness in sexual violence perpetration prevention efforts can be attributed to a number of factors, one of which is a failure to account for existing individual differences among potential perpetrators regarding attitudes and beliefs related to sexual violence. Prevention responses might target high-risk groups in order to limit the potential of individuals within these groups of developing into offenders (Welsh & Farrington, 2012). Because students enter college with differing beliefs and attitudes, programing efforts that do not account for these individual differences might be poorly received and as a result, be less effective at reducing problematic beliefs related to sexual violence perpetration.

One set of widely researched attitudes related to sexual violence perpetration are rape myth beliefs which are those that falsely attribute blame for sexual violence onto victims, rather than perpetrators (Brownmiller, 1975; Burt, 1980a). These types of beliefs are more likely to be held by men who are sexually aggressive or violent (DeGue & DiLillo, 2004; DeGue et al., 2010; Tharp et al., 2012; Yapp & Quayle, 2018) and are associated with other beliefs related to sexual violence perpetration such as hostility towards women and hostile sexism (Canto et al., 2014; Murnen & Kohlman, 2007;

Russell & King, 2016; Suarez & Gadalla, 2010). Additionally, rape myth beliefs have been linked with decreased comprehension of sexual consent (Warren, Swan, & Allen, 2015) and perpetrators' post-assault justifications for their behavior (Wegner, Abbey, Pierce, Pegram, & Woerner, 2015). While rape myths have been frequently examined, investigations into the heterogeneity among individual rape myths—such as differences in levels or types of rape myths endorsed in relation to perpetration—are rare (Mouilso & Calhoun, 2013).

Along with beliefs and attitudes, understanding other factors associated with sexual violence can help guide efforts to improve prevention programs by identifying perpetration risk that might be addressed within programming. Another frequently researched risk-factor for sexual violence perpetration is involvement in all-male peer groups such as fraternities or all-male sports teams, and a review study found that belonging to these types of all-male peer groups was associated with increased sexual violence perpetration (Tharp et al., 2012). Less studied, although equally important, are factors that might reduce the risk of an individual committing an act of sexual violence and serve as protective-factors (Tharp et al., 2012). The current study will examine a number of factors related to sexual violence perpetration in order to assess if heterogeneity in rape myth beliefs among college men is associated with three variables, two risk and one protective-factor, for sexual assault perpetration.

Attitudes and Beliefs Associated with Perpetration

Rape myth beliefs, as first conceptualized by Burt (1980), incorporate a range of beliefs that suggest victims, namely women—not perpetrators—are to blame for sexual assaults. Women might be blamed for "causing" an assault because of their style of

clothing or their use of alcohol, Meanwhile, men are let off the hook for "not meaning" to be sexually violent or because they were drinking. Additionally, these myths suggest that "real rape" only can occur if physical violence or a weapon are used as part of the incident. Overall, rape myth beliefs are commonly held among men who have committed sexual assault (Tharp et al., 2012). A number of types of rape myths have been identified including: 1*) She Asked For It*, 2) *It Wasn't Really Rape*, 3) *He Didn't Mean To*, 4) S*he Wanted It*, 5) *She Lied*, 6) *Rape Is A Trivial Event*, 7) *Rape Is Deviant Event* and 8) *He Did Not Mean To Due To Intoxication* (Lonsway & Fitzgerald, 1994; McMahon & Farmer, 2011). While a few studies have investigated these individual types, or subscales, of rape myths, little research has been conducted into the association of perpetration risk-factors or related variables with individual types of rape myths. Despite scholars' suggestions that examining individual types of rape myths could further our understanding of the perpetration of sexual violence (Mouilso & Calhoun, 2013), with a few exceptions (Carroll et al., 2016; McMahon, 2010, 2015b; Sleath & Bull, 2015), most researchers have examined rape myth beliefs scores averaged across all subscales of beliefs, thus ignoring individual types of rape myths, as measured through subscales.

A concept related to perpetration of sexual violence is proclivity to perpetrate sexual violence, also called rape proclivity. As a concept, rape proclivity was developed by Malamuth (1981) who demonstrated that many men demonstrate a likelihood of sexual violence and such proclivities are associated with rape-related beliefs, attitudes, and sexual aggression against women. However, rape proclivity as a risk-factor for sexual violence has received little research attention since the 1980s (DeGue & DiLillo, 2004). While attitudinal in nature, proclivity to perpetrate sexual violence measures participants'

self-reported likelihood of committing sexual violence under certain circumstances, usually if the participant knew they would not be caught. Researchers have found an association between rape myth beliefs and proclivity to perpetrate sexual violence (Bohner, Eyssel, Pina, Siebler, & Viki, 2009; Bohner, Pina, Viki, & Siebler, 2010; Bohner et al., 2006; Chapleau & Oswald, 2010; Süssenbach, Bohner, & Eyssel, 2013). Likewise, research has linked other attitudes that support violence against women, such as hostile sexism (Abrams, Viki, Masser, & Bohner, 2003) and aggression against women (Malamuth, 1981), with rape proclivity.

Several studies examining rape proclivity found that a sizeable proportion of men affirm they would commit sexual violence, including rape, under certain circumstances. The earliest of these studies found that 35% of males admitted to being likely to commit rape if they knew they would not be caught (Malamuth, 1981). A more recent study confirmed that a similar percentage, 33%, of men self-reported a likelihood of sexual violence perpetration in the next three months (Untied, Orchowski, & Lazar, 2013). Further research discovered an association between men who self-reported a likelihood of perpetrating sexual violence and actual future perpetration behavior (Gidycz et al., 2011). Proclivity to perpetrate sexual violence rates are also higher in sexually coercive men, as compared to men who are not sexually coercive (DeGue & DiLillo, 2005). Although these studies do not prove that men who demonstrate rape proclivity will indeed go on to perpetrate sexual violence, it can be argued that any manifestation of rape proclivity is a risk-marker for actual sexual violence perpetration. Finally, some scholars have suggested that endorsements of rape proclivity may be used to identify men who might commit sexual violence in the future (DeGue & DiLillo, 2004).

Factors That Influence Perpetration

In order to develop effective interventions that curb sexual violence rates on campuses, interventions need to address a variety factors that occur at individual, peer, and community levels and increase perpetration (Tharp et al., 2012). It is clear that sexual violence is not driven by a single factor and prevention efforts should be comprehensive in addressing a variety of factors that lead to sexual violence (Dodge, 2009). The Centers for Disease Control and Prevention's (CDC) socioecological framework for preventing sexual violence outlines both risk and protective-factors for victimization and perpetration as a guide for factors that might be targeted in prevention interventions (Dahlberg & Krug, 2002) and suggests factors that might be associated or co-vary with perpetration and be targeted in order to prevent sexual violence. However, only a few scholars have examined both perpetration risk and protective-factors and associated covariates in primary prevention efforts of sexual violence (Hall, Teten, DeGarmo, Sue, & Stephens, 2005; Tharp et al., 2012). The current study includes three variables that might be addressed in efforts to reduce attitudes and beliefs associated with sexual violence perpetration, and can be viewed as proactive or risk-factors for perpetration.

Bystander attitudes. Tharp and colleagues (2012) in a review of risk and protective-factors for sexual violence perpetration, found many studies identified perpetration risk-factors, but, few studies examined protective-factors. The authors suggest this gap in the research limits our understanding of sexual violence perpetration and how to prevent it. Bystander attitudes might serve as one such variable that can protect again perpetration. Although no previous research has examined bystander attitudes as a protective-factor against sexual violence perpetration and related attitudes,

such as rape myth beliefs and proclivity to perpetrate sexual violence, there is limited

evidence that suggests bystander attitudes may reduce rape myth beliefs.

Bystander attitudes indicate how willing a person would be to intervene before,

during or after an incident of sexual violence. In relationship to rape myth beliefs,

bystander attitudes are negatively related such that an increase in rape myth beliefs or

rape supportive attitudes predicts lower bystander attitudes (Banyard, 2008; A. L. Brown

& Messman-Moore, 2010; Fleming & Wiersma-Mosley, 2015; McMahon, 2010;

Orchowski et al., 2016; Powers et al., 2015). These studies suggest an association

between rape myth beliefs and bystander attitudes, such that bystander attitudes may

lower rape myths. However, despite the need for a greater understanding of protective-

factors for sexual violence perpetration, there has been little research examining how

bystander attitudes might protect against attitudes related to sexual violence perpetration

(e.g., rape myth beliefs and proclivity to perpetrate) by affecting such attitudes and

beliefs.

All-male peer groups. While men's attitudes and beliefs have been associated

with sexual violence perpetration, these individual level factors are not the only factors

linked to sexual assault perpetration. Another extensively researched area is the

relationship between all-male peer groups and campus sexual violence perpetration, with

a focus on fraternity members and male athletes. Early research demonstrating increased

sexual assault perpetration rates by some fraternity members (O'Sullivan, 1991; Sanday,

1990) has been replicated for both athletes and fraternity men (Tharp et al., 2012).

Scholars have postulated that such all-male peer groups create a "rape prone culture" in

which attitudes that support sexual assault are normalized and even encouraged (Boswell

& Spade, 1996; Sanday, 1990; Schwartz & DeKeseredy, 1997). Finally, research documents higher endorsement of rape myths among men belonging to these all-male peer groups (Murnen & Kohlman, 2007).

Fraternity membership. Research on fraternity members indicates that attitudes supporting sexual violence as well as sexually aggressive behaviors are more likely to be endorsed or committed by some men in fraternities than other men on college campuses. Men in fraternities and those who intend to join these groups are more likely to endorse beliefs and attitudes that support violence against women, such as rape myths and rape supportive attitudes (Bleecker & Murnen, 2005; Canan, Jozkowski, & Crawford, 2016; McMahon, 2010; Murnen & Kohlman, 2007; Seabrook, McMahon, & O'Connor, 2018). Likewise, being in a fraternity has been associated with increased rape proclivity (Seabrook et al., 2018) and sexually aggressive or coercive behavior (Foubert, Newberry, & Tatum, 2007; Loh et al., 2005; Murnen & Kohlman, 2007). Other research on the location of sexual assaults found that over a third of campus sexual assaults were committed in a fraternity house (Minow & Einolf, 2009).

Male athletic team membership. Another all-male peer group researched in relation to the perpetration of sexual violence is all-male athletic teams on college campuses. Researchers have found an association between men's athletic team membership and rape myth beliefs (McMahon, 2010, 2015b; Murnen & Kohlman, 2007; Sawyer, Thompson, & Chicorelli, 2002). Relatedly, research has demonstrated that male athletes are more likely to show rape proclivity than non-athletes (Boeringer, 1996). Finally, several studies have found that male athletes are more likely to be perpetrators of

sexual assault than non-athletes (Crosset, Benedict, & McDonald, 1995; Crosset, McDonald, Ptacek, & Benedict, 1996; Koss & Gaines, 1993; Murnen & Kohlman, 2007).

Summary. While some research indicates that fraternity and male athletic team members are more likely to commit sexual violence, there have been contrary findings in this area. A few studies suggest that fraternity men do not differ from other men on attitudes associated with sexual assault (Corprew & Mitchell, 2014), use of technology-based sexual coercion (Thompson & Morrison, 2013), or sexual aggression (Koss & Gaines, 1993). Several scholars suggested that some fraternities are high-risk for sexual assault while others are low-risk (Boswell & Spade, 1996; S. E. Humphreys & Kahn, 2000). Similarly, research on athlete status and sexual violence perpetration is mixed. A few research studies have found no association between athletic team membership and sexual aggression perpetration (Boeringer, 1996; Thompson & Morrison, 2013). Despite the mixed research on all-male peer groups and sexual assault, there is evidence to suggest that studying all-male peer groups in relationship to sexual assault perpetration is warranted.

Conceptual Framework

Male Peer Support Theory

The Male Peer Support Theory, was derived from feminist and sociological theories, suggests that peer pressure and norms influence males' objectification of women as well as thier violence against women (DeKeseredy, 1998a, 1998b; DeKeseredy & Schwartz, 2013). This theory suggests that a number of sociocultural influences contribute to violence against women (DeKeseredy & Schwartz, 2013). These influences include patriarchy, defined as male dominance within society; male-female relationships;

stress; male peer social systems; membership in all-male peer groups; narrow

conceptions of masculinity; group secrecy; an absence of deterrence; heavy alcohol use;

and sexual objectification of women. Taken together, these factors allow, or even

encourage, men within certain types of all-male peer groups to perpetrate violence

against women. The Male Peer Support Theory has received empirical support (Alvi et

al., 2001; DeKeseredy, 1998b; DeKeseredy & Schwartz, 2013; Franklin et al., 2012) and

has been applied to studying sexual violence on college campuses (Schwartz &

DeKeseredy, 1997). Finally, this theory has been used by other scholars to examine all-

male peer groups on campuses and the influences on these groups that contribute to

sexual violence perpetration (Franklin et al., 2012).

Heterogeneity of Rape Myths

Prior Research

Although research examining heterogeneity among rape myth beliefs has been

limited, there are individual studies that examine subscales of the rape myth beliefs in

relation to other factors (Carroll et al., 2016; McMahon, 2010, 2015b; Sleath & Bull,

2015). In addition, a prior study used person-centered methods to examine rape myth

subscales (O'Connor, In progress). Person-centered methods are used to discover

subgroups of participants based on variables of interest. These methods, as opposed to

traditional variable-centered analysis methods, assume heterogeneity within the sample

and that the relationships of the variables of interest will vary by individuals within

subgroups of the population (Masyn, 2013). The prior study using person-centered

methods to examine rape myths found four latent profiles of college men based on their

rape myth beliefs (O'Connor, In progress). These profiles included: 1) *Profile 1: Low*

Rape Myths. Individuals with this profile had the lowest level of rape myth beliefs of any group. 2) *Profile 2: Medium Rape Myths*. Men within this group had moderate levels of rape myth beliefs. 3) *Profile 3: High Specific Rape Myths.* These participants had extreme levels of rape myth beliefs on two of the five rape myths subscales: *Was Not Really Rape* and *Intoxicated, Did Not Mean to*. And 4) *Profile 4: High Rape Myths.* This group contained participants with highest levels of rape myth beliefs. Although this study found four profiles of rape myth beliefs among college men, no other research has examined factors associated with these profiles. Factors important to consider include beliefs associated with perpetration such as rape proclivity and variables that might affect such an association.

Current Study

The current study examines the following two research questions: 1) is membership within the subgroups, based on men's rape myth beliefs, differentially associated with proclivity to perpetrate sexual violence? And 2) within each subgroup based on rape myth beliefs, is proclivity to perpetrate sexual assault affected by bystander attitudes, a protective-factor, and/or intention to join an all-male peer groups, risk-factors? Using O'Connor's (2019) study which found four profiles of men based on their rape myth beliefs, the current study will test if within four profiles, rape proclivity is associated with other factors.

Methods

Procedures

The data from this study are drawn from a CDC-funded (*Experimentally Testing the Effectiveness of a Campus-based Bystander Intervention Model Using Peer Education and Theater*, Grant Number: 1 R01/CE001855-01, Dr. Sarah McMahon (PI) and Dr. Judy L. Postmus (Co-PI)) examination of a peer theater education program that focused on prosocial bystanders' behaviors and campus sexual violence. The study was conducted at a large public Mid-Atlantic university and was approved by the institution's IRB. As part of the original study, participants watched a peer theater performance addressing the issue of campus sexual violence after the baseline wave of data was collected. Afterward, participants were randomized into groups and created their own unique identification code in order to collect data anonymously. The first wave of data is used in this study. For a full description of the methods and the intervention, see (McMahon, Winter, et al., 2015)

Participants

Incoming first-year students participated in the study between June 2010 and September 2011 and at five time points thereafter. For the parent study, 1,390 students made up the final sample (see McMahon et al., 2015 for more information on the sample). Only the baseline wave of the dataset was used in the current study. Since the rape proclivity questions are geared towards men, only the male sample was used for this study. The final sample, after eliminating those who did not consistently identify their gender as male, consisted of 513 respondents. Of these participants, 49% identified as White, 34% as Asian, 7% as Latino, 4% as Black, and 7% as another race or ethnicity.

Measures

Rape myth beliefs profiles. Consisting of five subscales: 1) *She Asked For It*; 2) *It Was Not Really Rape*; 3*) He Did Not Mean to Due to Intoxication*; 4) *He Did Not Mean to*; And 5) *She Lied*, a seventeen-item modified version of the Illinois Rape myth beliefs Scale (McMahon & Farmer, 2011) was used in prior analysis to discover four profiles of men's rape myth beliefs (O'Connor, In progress): 1) *Profile 1, Low Rape Myths* had the lowest level of rape myth beliefs and compromised 50% of the sample; 2) *Profile 2, Medium Rape Myths* had mid-levels of rape myth beliefs and represented 34% of the sample; 3) *Profile 3, High Specific Rape Beliefs* had extreme levels of rape myth beliefs on two of the five rape myths subscales, and men within this subgroup made up 2% of the sample. In *Profile 3*, the elevated rape myths were for the myth *It Was Not Really Rape* and *He Did Not Mean to Due to Intoxication*. Finally, 4) *Profile 4, High Rape Myths*, had the highest levels of rape myth beliefs and made up 15% of the sample.

Proclivity to perpetrate sexual violence. This item averaged together two questions for a mean score on rape proclivity. The first question asked, "How likely would you be to force another person to do something sexual even if she didn't want to, if you were assured that no one would know and that you could in no way be punished?" (Malamuth, 1989). The second question reads, "How likely would you be to have sex with another person who was too intoxicated to resist your sexual advances, if you were assured that no one would know and that you could in no way be punished?" This second question was created from the Perpetrator History Scale (Lisak et al., 2000) and a question from Malamuth's (1989) study. The response options for this item were 1, *Not*

at All Likely, 2, *Somewhat Unlikely*, 3, *Neutral,* 4, *Somewhat Likely*, and 5, *Extremely Likely*.

Bystander attitudes. This construct was included in the analysis as a covariate that might be protective against rape proclivity. Bystander attitudes were measured using a modified version of the Bystander Attitude Scale (McMahon et al., 2014; McMahon, Postmus, & Koenick, 2011). The scale contained 18 questions asking about potential bystander actions during hypothetical incidents of sexual violence. An example question asks, "In the future, how likely are you to confront a friend who plans to give someone alcohol to get sex." The mean score of all questions was used for analysis. Participants indicated how likely they would be to perform such behaviors in the future on a five-point scale from 5, *Unlikely* to 1, *Very Likely*. For the purposes of this paper, the variable of bystander attitudes was dichotomized into two groups, one with high bystander attitudes and one with low bystander attitudes. The mean (3.52) of the scale was used as the cutoff value to create the two groups.

Intention to join a fraternity and/or an athletic team. These questions were measured through two yes/no questions asking if participants intended to 1) pledge a fraternity and/or 2) join an athletic team during the time in college. The model included these variables as dichotomized variables, either participants intended to join a fraternity or not, and, either intended to join an athletic team or not.

Analyses

Research question 1: Predicting proclivity to perpetrate sexual assault. In order to test differences in membership in the latent profiles of rape myths on rape proclivity, a multinomial logistic regression was used to test how membership in the four

profiles predicted rape proclivity, a distal outcome. The latent profiles were entered into the model in comparison to a base profile, the subgroup of men who had the lowest levels of rape myth beliefs, *Profile 1, Low Rape Myths*, to predict rape proclivity as a dependent variable using the Bolck, Croon, and Hagenaars (2004) (BCH) method (Asparouhov & Muthén, 2018). The BCH method estimates the latent class structure before including distal outcomes as is current best practice and accounts for the uncertainty in profile membership (Nylund-Gibson & Masyn, 2016). Additionally, the BCH method is recommended for continuous distal outcomes (Asparouhov & Muthén, 2018), such as mean scores of rape proclivity, and may help prevent biased parameter estimates (Bakk & Vermunt, 2016). The results of the distal outcome analysis demonstrate differences in mean rape proclivity across profiles using a chi-square test.

Research question 2: Covariates. Testing was conducted to examine the effects of covariates on proclivity to perpetrate sexual assault by: 1) bystander attitudes, a protective-factor 2) intention to join a fraternity, a risk-factor and 3) intention to join an athletic team, a risk-factor. Covariate effects were examined by entering the variables into the regression model using the BCH method. All analyses were conducted using MPlus Version 8.0 (Muthen & Muthen, 2017).

<div style="text-align:center">

Results

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**Research Question 1: Predicting Proclivity to Perpetrate Sexual Assault**

The first research question was addressed by examining if membership in the subgroups, based on men's rape myth beliefs, differs in relationship to proclivity to perpetrate sexual violence as a distal outcome. All subgroups were compared to each other and the subgroup with lowest levels of rape myth beliefs, *Profile 1, Low Rape*

Myths, was used as the reference group. As seen if Figure 3, men within subgroups with higher levels of rape myths, *Profile 2, 3* and *4*, have significantly higher mean scores on the measure of rape proclivity compared to men in *Profile 1, Low Rape Myths.* Specifically, compared to men in *Profile 1, Low Rape Myths* (M = 1.23, SE = .04), those men in *Profile 2, Medium Rape Myths* (M = 1.46, SE = .07) have significantly higher rape proclivity scores X^2 (3, 490) = 9.323, p = 0.002. Likewise, compared to men in *Profile 1, Low Rape Myths,* men in *Profile 3, High Specific Rape Myths* (M = 1.93, SE = .32) have higher mean rape proclivity scores X^2 (3, 490) = 4.634, p = 0.031 as did men in *Profile 4, High Rape Myths* (M = 1.60, SE = .11), X^2 (3, 490) = 7.904, p = 0.005. Although the rape proclivity mean score for *Profile 3, High Specific Rape Myths* was the highest of all the profiles, there were no other significant differences between the profiles on rape proclivity scores.
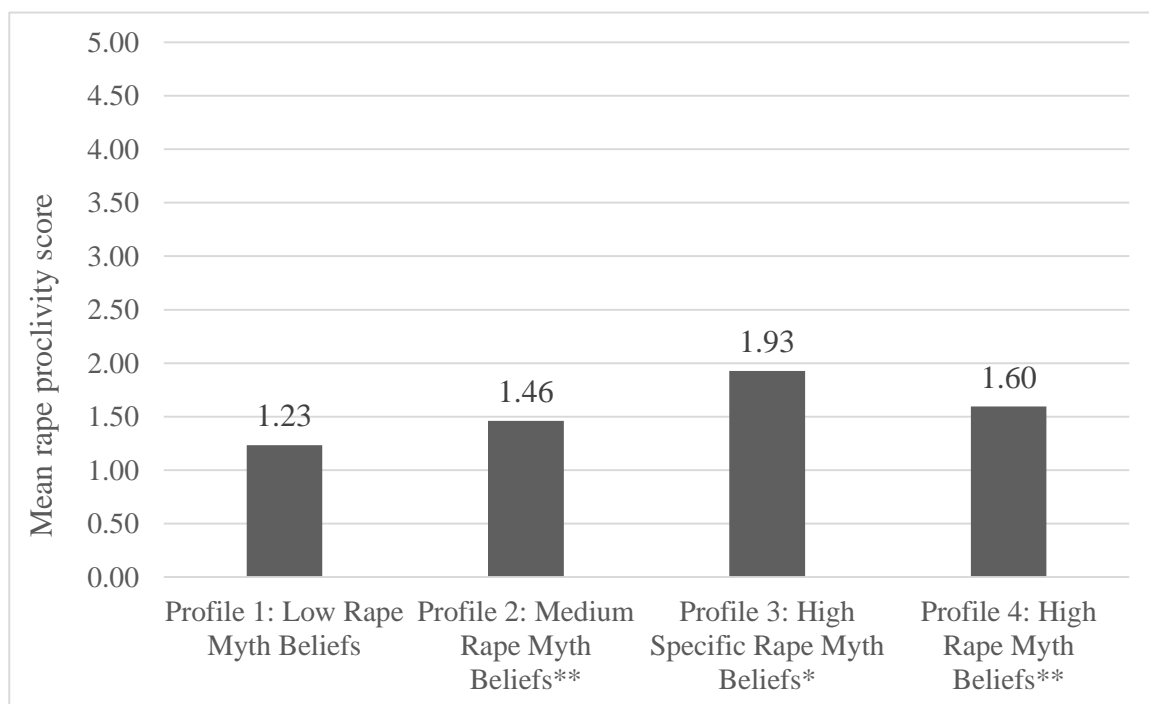
* Compared to Profile 1, p<.01; ** Compared to Profile 1, p<.001.

Figure 3: Rape Proclivity by Profile

Research Question 2: Association with Rape Proclivity

The effects of three variables, bystander attitudes, intention to join a fraternity, and intention to join an athletic team, were examined within each profile in order to see if these variables were associated with rape proclivity within each class. As seen in Figure 4, bystander attitudes were associated with rape proclivity within three profiles (*Profile 1, Low Rape Myths; Profile 3, High Specific Rape Myths;* and *Profile 4, High Rape Myths)* but not within the remaining profile (*Profile 2, Medium Rape Myths).* Within the three profiles where bystander attitudes significantly affected rape proclivity, the effect of bystander attitudes was in the hypothesized direction and lowered rape proclivity such that men with higher bystander attitudes, compared to those men with lower bystander attitudes, had lower rape proclivity scores. Thus, bystander attitudes acted as a protective-factor by lowering proclivity to perpetrate sexual violence within three profiles.
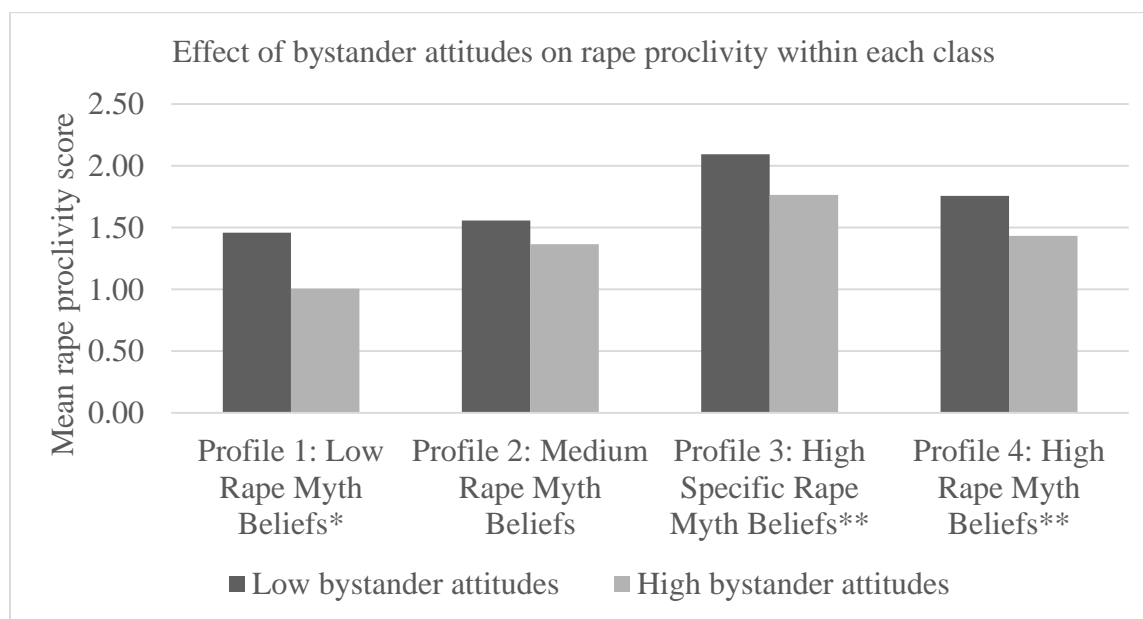
*p≤ .001; * *p≤.01

Figure 4: Effect of Bystander Attitudes on Rape Proclivity within Each Profile

In terms of risk-factors, Figure 5 demonstrates the effect of intention to join a fraternity on rape proclivity. Within two profiles (*Profile 2, Medium Rape Myths;* and *Profile 3, High Specific Rape Myths*), intention to join a fraternity significantly increased rape proclivity, but not within the other two profiles (*Profile 1, Low Rape Myths;* and *Profile 4, High Rape Myths*). As hypothesized, intention to join a fraternity appears to act as a risk-factor by increasing the rape proclivity within some profiles for men who intend to join a fraternity as compared to those who do not intend to join a fraternity. Intention to join an athletic team, was not significantly related to rape proclivity.
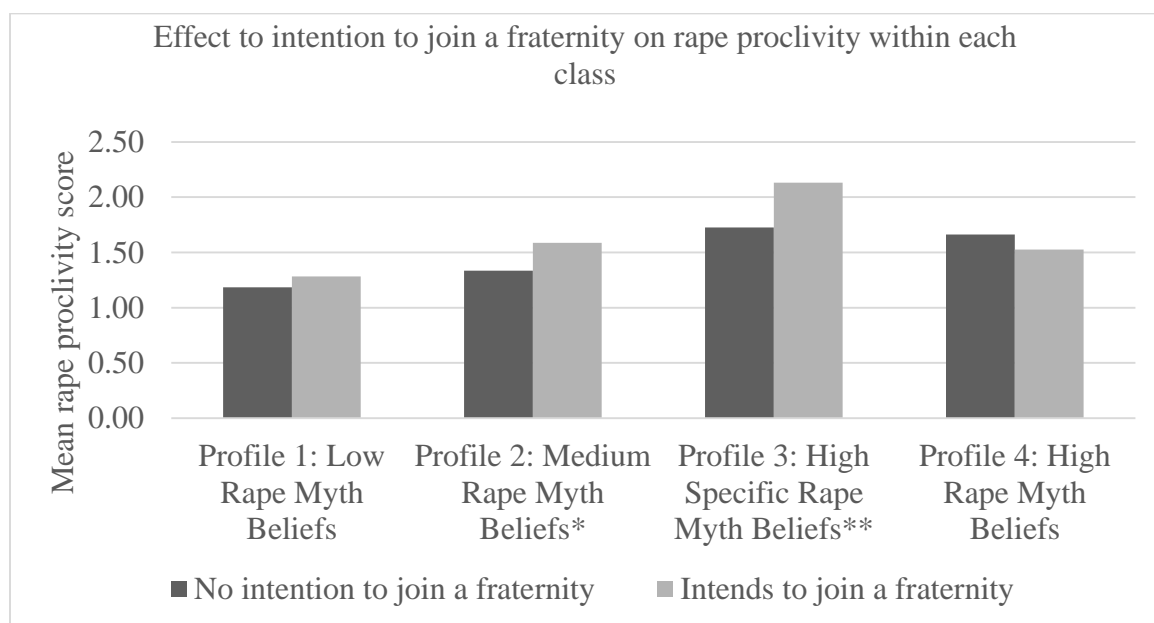
* p≤ .05; ** p≤.001.

Figure 5: Effect of Intention to Join a Fraternity on Rape Proclivity within Each Profile

Discussion

The findings from this study indicate that men within subgroups with higher levels of rape beliefs endorse rape proclivity at higher rates than men in with lower levels of rape myth beliefs. Compared to men with the lowest levels of rape myths, *Profile 1: Low Rape Myths*, men within the three subgroups of men with higher levels of rape myth beliefs had higher rape proclivity mean scores. These findings answer Research Question 1: is men's membership within the subgroups of men, based on their rape myth beliefs, differentially associated with proclivity to perpetrate sexual violence? In terms of Research Question 2, examining if within the subgroups of men, rape proclivity is affected by other factors that may be proactive or increase risk of perpetration, the findings from this study are more complex. Bystander attitudes, a hypothesized protective-factor, reduced rape proclivity within three of the profiles *Profile 1, Low Rape Myths, Profile 3, High Specific Rape Myths,* and *Profile 4, High Rape Myths*. For the other profile, *Profile 2, Medium Rape* Myths, bystander attitudes reduced rape proclivity but the effect was not statistically significant. These findings indicate that bystander attitudes did serve as a protective-factor as hypothesized and reduced rape proclivity for men within three of the four subgroups. Intention to join a fraternity, a hypothesized risk-factor, increased rape proclivity but only for men within two profiles (*Profile 2, Medium Rape Myths* and *Profile 3, High Specific Rape Myths*). Thus, men within these two subgroups, those with medium and high specific rape myth, have higher rape proclivity mean scores if they also intend to join a fraternity. However, the other hypothesized risk-

factor, intention to join an athletic team, did not significantly increase rape proclivity within the profiles.

While the relationship between rape myths and proclivity to perpetrate sexual violence has been examined previously (Bohner et al., 2009; Bohner et al., 2010; Bohner et al., 2006; Chapleau & Oswald, 2010; Süssenbach et al., 2013), this is the first study to investigate men's membership within subgroups with differing levels of rape myth beliefs in relationship to rape proclivity. These findings suggest that not only are rape myth beliefs associated with rape proclivity, as has been found previously, but that some subgroups of men who endorse higher levels of some or all rape myths have higher rape proclivity compared to the subgroup of men with lowest levels of rape myth beliefs.

In addition to the relationship between men's membership in subgroups with differing levels of rape myth beliefs, this study also sheds light on an important covariate related to rape myth beliefs and rape proclivity: bystander attitudes. Past research indicated that bystander attitudes, which have been found to be negatively associated with rape myth beliefs, might serve as a protective-factor (Banyard, 2008; A. L. Brown & Messman-Moore, 2010; Fleming & Wiersma-Mosley, 2015; McMahon, 2010; Orchowski et al., 2016; Powers et al., 2015). However, this is the first study examining the effect of bystander attitudes in reducing rape proclivity. The findings from the current study indicate that bystander attitudes serve to reduce the effect of rape myth beliefs on rape proclivity within some subgroups of men and may help fill the research gap surrounding protective-factors related to perpetration of sexual violence.

Similarly, this study builds on an existing research base examining fraternity group status as a potential risk-factor. Prior research demonstrated that belonging to this

type of all-male peer group is associated with rape proclivity (Seabrook et al., 2018) and sexual violence perpetration (Tharp et al., 2012). These findings are in line with the Male Peer Support Theory (Schwartz & DeKeseredy, 1997) suggesting that membership in all-male peer groups increases violence against women including campus sexual assault (Schwartz & DeKeseredy, 1997). However, the findings of this study do not support athletic team membership as a risk-factor for rape proclivity. Although this is contray to the tenets of Male Peer Support Theory, it is important to remember that not all male peer-groups are expected to foster environments that encourage violence against women. Some research also fails to support the idea that male athletes are more likely to perpetrate sexual violence (Boeringer, 1996; Thompson & Morrison, 2013). Although intention to join a fraternity did increase rape proclivity, intention to join an athletic team did not; this may indicate important differences in men's risk-factors for perpetration of sexual violence for men who join fraternities versus men who join athletic teams.

Limitations

While this study examines important factors related to subgroups of men based on their rape myth beliefs, there are limitation within this study. First, sparseness, is a concern in LPA when one or more of the classes has a small sample size, such as Class 3 (n=8) in this paper. Sparseness refers to the cell-counts of each latent class by each covariate. To the extent that the cell-counts are small, it can affect regression analysis estimations within latent class analyses (Collins & Lanza, 2010) and can cause "small sample bias" or "spare bias" even within large samples when conducting regression (Greenland, Mansournia, & Altman, 2016). However, Collins and Lanza (2010) suggest that such problems are likely to affect results when estimation of the regression model

fails and thus, no results are obtainable. In this case, although the data are sparse within one profile, the model still ran and significant results were obtained suggesting that that sparseness did not affect the model estimation in a meaningful way. Furthermore, sparseness often becomes problematic in regression analysis when multiple covariates are included in the model, creating a situation wherein there are few or no participants have experienced the independent, dependent and covariate variables (Greenland et al., 2016). Greenland and colleagues (2016) give an example of study that contained 12 independent variables and 120 dependent variables creating a sparseness bias. The current study with four-categories of an independent variable, a single dependent variable and six categories of covariates, does not rise to the level of the example given. Additionally, in other analyses conducted and not shown (but available) with other covariates, the regression models in MPlus did not run or produced extreme and unreliable estimates suggesting that sparseness was an issues for these models, but, not for the results included in this study.

Second, the data used is cross-sectional. Although the four profiles of rape myth beliefs were differentially associated with rape proclivity, these two constructs were measured at the same time point. As such, it is difficult to distinguish which attitude precedes the other. Scholars have hypothesized that rape myths are an antecedent to rape proclivity (Bohner et al., 2009; Bohner et al., 2010; Bohner et al., 2006) and this study builds on this assumption by examining rape proclivity as a distal outcome. However, without using longitudinal data, we cannot make definitive conclusions about the direction of causality between rape myth beliefs and rape proclivity. Relatedly, the sample for the current study was smaller than the larger longitudinal study. Within the

larger study, due to participants' errors in creating a unique identification code, there were issues matching participants over time and as such, the final data set only contained participants who could be matched. This sample was much smaller than the original larger sample and dropped participants were not included within this study.

Similarly, this study examines all male peer groups as factors for increasing the association between rape myth beliefs and rape proclivity. However, because the data used within this study was collected as students entered college, the data reflects intention to join an all-male peer group and not actual membership within such a group. As men join these groups and are surrounded by peers with attitudes supporting violence against women, such as rape myth beliefs, their own rape myth and rape proclivity attitudes might increase. Thus, this study by using a measure of intention to join an all-male peer group might not fully capture the influence of male peers and instead might capture pre-existing attitudes. Additionally, as some scholars have suggested that not every all-male peer group is at equal of risk for sexual violence perpetration (Boswell & Spade, 1996; S. E. Humphreys & Kahn, 2000), the variable used in the current study does not reflect variation in types of all-male peer groups that might create even higher risk subgroups of men who join "high risk" fraternities or athletic teams. Perhaps these limitations can help explain why this study did not find that male athletic team membership intentions were associated with rape proclivity and fraternity membership was not associated with rape myth subgroup and rape proclivity for each and every subgroup.

Finally, several of the measures used within the study are subject to biases. Both rape myth beliefs and rape proclivity are self-reported measures asking about sensitive topics making them vulnerable to social desirability bias. Men being asked to report on

attitudes such as rape myths and rape proclivity are very likely to know that attitudes such as these are not considered socially acceptable, and, as a result, their answers to questions about these beliefs may not reflect their actual underlying attitudes. Addressing the issue, newer methods of measuring rape proclivity have been developed using scenario-based questions (Bohner et al., 2005; Bohner et al., 2010; Bohner et al., 1998; Bohner et al., 2006). Future studies examining rape proclivity might use these newer methods in order to help reduce social desirability bias.

Implications and Future Research

This study's findings suggest several possible implications for interventions to address campus sexual violence perpetration with the end goal of reducing rates of sexual violence among college students. The first point of intervention involves tailoring prevention efforts to men with higher rape myth beliefs levels. Among the prevention programming efforts that have been implemented globally aiming to reduce perpetration of sexual violence, none, including bystander interventions, have been found to be effective among men at high-risk for sexual violence in reducing outcomes such as rape supportive beliefs and attitudes (Malamuth, Huppin, & Linz, 2018).

Given the failure of many prevention programs to reduce sexual violence perpetration rates (DeGue et al., 2014), the results of the current study may provide one possible avenue for improving prevention efforts through tailoring prevention programs for men who enter college with differing pre-existing beliefs and attitudes related to sexual violence perpetration. If men within those higher rape myth subgroups (*Profiles 2,3* and *4*) receive appropriate programming to reduce rape myths, such programming should also reduce rape proclivity. Men come into college with varying levels of rape

myth beliefs: some subgroups with lower levels of rape myth beliefs and others with higher levels on some or all of the rape myths. Likewise, those subgroups with higher levels of rape myths also have higher rape proclivity. As such, tailoring prevention programing efforts for men with higher levels of rape myth beliefs may be a more cost-effective use of programming; in addition, programming might be tailored toward reducing specific rape myths endorsed within specific subgroups. Ultimately, such efforts will work to reduce beliefs and attitudes related to perpetration, such as rape myth beliefs and rape proclivity, with reducing sexual violence rates being the ultimate end goal.

Studies examining tailored prevention programming for men at high-risk of perpetration have been few and far between (Bosson, Parrott, Swan, Kuchynka, & Schramm, 2015; Elias-Lambert & Black, 2015; Stephens & George, 2004, 2009). The findings from this current study could build upon past work by testing interventions aimed at reducing rape myth beliefs, specifically within subgroups of men with higher rape myth beliefs, in order to see if these types of interventions also reduce sexual violence perpetration and related constructs such as rape proclivity.

Importantly, some scholars have suggested and found that traditional prevention programming does not work with high-risk men (Stephens & George, 2004) or even has a "backlash effect" or "boomerang effect" increasing sexual aggression among high risk groups perhaps as a result of resistance to prevention interventions (Bosson et al., 2015; Malamuth et al., 2018; Stephens & George, 2009). The Male Peer Support Theory also suggests that high-risk men surround themselves with likeminded peers. For example, within a single fraternity, men may hold rape supportive attitudes and reinforce these beliefs with one another thus, increasing these types of beliefs in the group as a whole,

making such groups more resistant to prevention programming. One of these studies (Bosson et al., 2015) demonstrated that men with high hostile sexism attitudes increased sexually aggressive behavior after a prevention intervention, while men with lower hostile sexism attitudes did not demonstrate this increase. These findings indicate that uniform prevention programming, not tailored to high-risk groups, can be ineffective and even harmful if these types of programs increase sexual violence perpetration. Perhaps tailoring programming to students' pre-existing beliefs and attitudes will help lower resistance among high-risk groups and increase receptiveness to prevention interventions. More research is needed to examine tailored interventions and to understand such high-risk groups.

Another implication of this study stems from the findings regarding covariates that can increase or reduce the association between rape myth beliefs and rape proclivity. As few studies focus on protective-factors related to sexual violence perpetration (Hall et al., 2005; Tharp et al., 2012), this study suggests a further reason to implement bystander programming beyond the existing evidence suggesting that bystander interventions reduce sexual violence rates (Coker et al., 2017; Coker et al., 2015). Only a few studies have examined the relationship between bystander attitudes and rape myths (Banyard, 2008; A. L. Brown & Messman-Moore, 2010; Fleming & Wiersma-Mosley, 2015; McMahon, 2010; Orchowski et al., 2016; Powers et al., 2015) and no existing studies have examined the relationship between rape myth beliefs and rape proclivity using person-centered methods. This study indicates that programs aimed at increasing bystander interventions might also serve as a protective-factor for rape proclivity among some subgroups of men. As this proactive factor has not been commonly studied, future

research might both investigate the relationship between rape myths and bystander attitudes and also the relationship between rape proclivity and bystander attitudes.

A final implication for this study regards the increased association between some subgroups of men related to their rape myth beliefs, rape proclivity and intention to join a fraternity. Fraternity status has previously been identified as a risk-factor for sexual violence perpetration (Boeringer, 1996; Foubert et al., 2007; Loh et al., 2005; Murnen & Kohlman, 2007) as has intention to join a fraternity (Seabrook et al., 2018), yet a review study examining primary prevention programs found that only 14% of such programs targeted all-male peer groups as an audience (Tharp et al., 2012). The current study suggests that men in fraternities should receive additional programming to decrease their rape myth beliefs. Additional research might focus on men with more than one risk-factor for perpetration of sexual violence including both high rape myth beliefs and fraternity status as identified in this study.

Conclusion

The findings from this study indicate that the three subgroups of men with either moderate or high levels on some or all of the rape myth beliefs have higher rape proclivity mean scores compared to men in the subgroup with the lowest levels. Additionally, within some of these profiles, rape proclivity is affected by bystander attitudes, a protective-factor, and intention to join a fraternity (but not intention to join an athletic team), a risk-factor. The results of this study can be used to understand men at high risk of perpetrating sexual violence, those with either moderate or high levels rape myth beliefs, and factors that might serve as protective or risk-factors in order to tailor prevention efforts to reduce sexual violence perpetration with these higher risk men. In

this way, prevention interventions might target men with higher levels of rape myths or those in fraternities in order to decrease attitudes such as rape myth beliefs and rape proclivity with the aim of ultimately lowering perpetration rates. Similarly, prevention efforts might build upon existing bystander intervention efforts with the specific aim of increasing bystander attitudes coupled with decreasing rape myths and perpetration proclivity.

Acknowledgments

Chapter 5: Paper 3

THE RECIPROCAL EFFECTS OF RAPE MYTH BELIEFS AND RAPE PROCLIVITY

By

JULIA O'CONNOR

Manuscript 3 of 3 of a dissertation entitled:

RAPE MYTHS AND PROCLIVITY TO PERPETRATE IN MALE COLLEGE

STUDENTS

A dissertation submitted to the PhD Program in Social Work Rutgers, the State

University of New Jersey in partial fulfillment of the requirements for the degree of

Doctor of Philosophy Graduate School-New Brunswick

Written under the direction of Sarah McMahon

Introduction

Sexual assault on college campuses is a serious problem that affects one in five women before they graduate (Cantor & Thomas, 2015; Krebs et al., 2016). While men can also be the victim of sexual assault, most sexual violence survivors are female and the majority of perpetrators are male (Cantor & Thomas, 2015; Krebs et al., 2016). Increasingly, campuses nationwide have implemented programming to prevent sexual violence. Prevention programming, researchers suggest, should directly address sexual violence perpetration, not potential victimization (DeGue et al., 2014). To truly address the prevention of perpetration, understanding risk-factors for perpetration is needed. Two risk-factors for perpetration identified in the literature are a belief in rape myths (Tharp et al., 2012; Yapp & Quayle, 2018) and self-reported proclivity to perpetrate (Malamuth, 1981). More nuanced examinations of sexual violence prevention efforts have demonstrated that there are different levels of risk, and not all programs take these into account (Elias-Lambert & Black, 2015); therefore, we need to better understand the risk-factors including rape myth and rape proclivity beliefs to effectively prevent perpetration.

A common target of prevention programs are rape myths, described as false beliefs regarding sexual assault either in relation to the survivor or perpetrator of the assault or the incident of rape itself (Brownmiller, 1975; Burt, 1980b; Schwendinger & Schwendinger, 1974). Conventionally, scholars have assumed that these attitudes are causally linked to proclivity to perpetrate: an individual's endorsement of the likelihood of committing sexual violence in the future given the condition that the person would never be caught (Bohner et al., 2009; Bohner et al., 2005; Bohner et al., 2006). But it is also possible that both these constructs, rape myth beliefs and rape proclivity, reinforce

one another in a reciprocal fashion. For example, not only may rape myth beliefs predict proclivity to commit assault, but individuals' perceptions of their likelihood to commit assault could impact beliefs in rape myths as a way to potentially justify their attitudes. Therefore, this study examines two sets of beliefs known to be associated with sexual violence perpetration: namely, rape myth beliefs and proclivity to perpetrate sexual violence, in order to determine if reciprocal causality might exist. It is important to examine how rape myth beliefs affect rape proclivity and vice-versa to understand if these constructs feed off each other and reinforce each other over time. Such an understanding can help inform and tailor prevention programming directed at men at higher risk of sexual assault perpetration and effectively target the antecedents of perpetration.

Men at Risk of Perpetration

Given that not all men are perpetrators of sexual assault, an important step in prevention is to identify male students at higher risk for sexual violence perpetration. Once such risk-factors are identified, tailored prevention messages can appropriately address attitudes and beliefs related to sexual violence perpetration among these men. Such an approach suggests prevention responses should target high-risk men in order reduce the likelihood of individuals of developing into perpetrators (Welsh & Farrington, 2012). Few studies have examined prevention efforts that tailor programs to differing risk-groups for sexual violence perpetration (for examples of studies using risk-groups, see (Elias-Lambert & Black, 2015; Stephens & George, 2004, 2009) despite suggestions by scholars that such research is needed (Stephens & George, 2009); these include recommendations to conduct research on men who demonstrate a proclivity to rape

(Gidycz et al., 2011). In order to improve intervention efforts targeted at men who are at high-risk of sexual violence perpetration an important first step is understanding the exact risk-factors for perpetration and the relationship of these risk-factors have to each other over time.

Research indicates that men fall into differing trajectories of sexual assault perpetration throughout their college years: the majority of men do not perpetrate, while other groups do so at a consistently moderate or high level, a decreasing level, or an increasing level throughout college (Swartout, Swartout, et al., 2015; Thompson et al., 2013). Building on this work, scholars found that risk-factors related to sexual violence perpetration, including rape supportive beliefs (a construct similar to rape myth beliefs), changed among men whose own perpetration behaviors increased over time, indicating that as perpetration increases, there is a corresponding increase in risk-factors including problematic beliefs (Thompson et al., 2015). These findings indicate that men have differing risks for sexual violence perpetration that may change over time along with sexual violence perpetration rates. Constructs such as rape myth beliefs and rape proclivity may be used to identify men at risk for sexual violence perpetration and this risk may change over time.

While no studies have examined if rape proclivity predicts rape myth attitudes, a reciprocal relationship could be hypothesized to exist wherein the two beliefs predict each other over time. Ascertaining whether these two beliefs predict each other could help inform our understanding of how these beliefs are associated with sexual violence perpetration behaviors and increase our understanding of how to prevent sexual violence in those men who are at high risk for perpetration given their self-reported rape

proclivity. It is easy to imagine that false beliefs about rape (e.g., the idea that the victim "asked for it") are associated with an increased likelihood of future sexual violence. In turn, endorsing a likelihood to engage in future acts of sexual violence could intensify rape myth beliefs as a justification for such violence. Thus, rape myths might support the likelihood of future rape perpetration; and conversely, beliefs endorsing future rape perpetration may increase rape myth beliefs. In order to understand the antecedents of actual rape perpetration, it is important to understand the relationship these constructs—rape myths and rape proclivity—have to each other over time.

Beliefs Associated with Sexual Violence Perpetration: Rape Myths and Rape Proclivity

Rape myths are beliefs that often reference survivors of sexual assault and blame the victim rather than the perpetrator of a rape. These beliefs suggest that women who dress a certain way, drink alcohol, or are perceived as "promiscuous" are somehow asking to be raped (McMahon & Farmer, 2011; Payne et al., 1999). Other rape myths excuse the perpetrator for his actions through ideas such as "he could not help it" or "he was drunk" (McMahon & Farmer, 2011; Payne et al., 1999). Finally, some rape myths trivialize incidents of sexual assault by implying they are not violent or serious enough to qualify as "real rape" (Payne et al., 1999). Endorsing rape myth beliefs is associated with proclivity to perpetrate a sexual assault in several studies (Chapleau & Oswald, 2010) Malamuth, 1981) as well as with actual sexual assault perpetration (DeGue & DiLillo, 2004; DeGue et al., 2010; Russell & King, 2016; Tharp et al., 2012; Widman et al., 2013; Yapp & Quayle, 2018). Murnen and Kohlman (2007), in a meta-analysis of factors associated with sexual aggression, found that rape myth beliefs were significantly

associated with sexual aggression across multiple studies. However, rape myth beliefs also has been linked to sexual assault perpetration in longitudinal studies (Davis et al., 2015; Kingree & Thompson, 2015; Lanier, 2001). These studies show that, over time, those who endorse rape myths are more likely to commit acts of sexual aggression or violence.

In addition to rape myth beliefs, another belief associated with sexual assault perpetration is rape proclivity. Survey items used to measure rape proclivity assess individuals' beliefs in their likelihood of committing rape under specific situations such as knowing they would never be caught after committing a sexual assault (Bohner et al., 1998; Malamuth, 1981). In the seminal study of rape proclivity, Malamuth (1981) found that one in three men indicated some proclivity to perpetrate sexual violence in the future, demonstrating that a high percentage of men may sanction such beliefs. Other studies further support these early research findings, demonstrating that a sizable percentage of men self-report being likely to commit rape under specific circumstances (Bohner et al., 1998; Chapleau & Oswald, 2010). Specifically, Bohner and colleagues (1998) found nearly two out of three men (63%) self-reported rape proclivity, using a hypothetical question that assured participants that no one would find out what they did. Chapleau and Oswald (2010) found slightly lower rates; just over half (57%) of men indicated some likelihood of committing sexual violence in response to five different rape scenarios when asked "In this situation, what is the likelihood that you would have done the same?" (p. 72). Together, these studies suggest that rape proclivity rates are high among some groups of men.

Rape proclivity has been linked to other behaviors and attitudes related to sexual violence such as hostile sexism (Abrams et al., 2003; Romero-Sánchez, Toro-García, Megías, & Horvath, 2017) and aggression against women (Malamuth, 1981), 1981). Rape proclivity rates are also higher in sexually coercive men as compared to men who are not sexually coercive (DeGue & DiLillo, 2004). Additionally, in a longitudinal study of men who committed sexual violence, the majority of these men had previously expressed rape proclivity before perpetrating sexual violence (Gidycz et al., 2011). Although these studies do not prove that men who affirm a proclivity to perpetrate sexual violence on a survey will go on to perpetrate sexual violence, some researchers have suggested that rape proclivity beliefs may be used to identify men who may go on to commit sexually violent acts in the future (DeGue & DiLillo, 2004).

The Relationship between Rape Myths and Rape Proclivity

Several studies have demonstrated an association between rape myth beliefs and proclivity to perpetrate (Bohner et al., 2010; Bohner et al., 2006; Chapleau & Oswald, 2010; Süssenbach et al., 2013). Previous research looking at rape myth beliefs and proclivity to perpetrate sexual violence assumed a linear relationship between the two constructs, with rape myth attitudes predicting rape proclivity. For example, Alleyne and colleagues (2014) found that rape myth beliefs predicted interest in committing a multiple-perpetrator rape. In an earlier series of studies, Chiroro, Bohner, Viki, and Jarvis (2004) tested the ability of rape myths to predict rape proclivity. Finally, a similar study tested a moderating variable on the effect of rape myth beliefs on rape proclivity (Süssenbach et al., 2013). All of these studies frame the research questions around the assumption that rape myth beliefs predict rape proclivity. Several studies have theorized

and tested this relationship and found evidence to support the idea that rape myth beliefs predict rape proclivity (Bohner et al., 2005; Bohner et al., 1998; Bohner et al., 2006).

Scholars have hypothesized that rape myths may act as "psychological neutralizers" which allow men to disregard their usual inhibitions against perpetuating sexual violence, increasing their rape proclivity by rationalizing it (Bohner et al., 1998; Burt, 1980a). Bohner and colleagues in three studies (1998; 2005; 2006) theorized that rape myths serve as causal antecedents for proclivity to perpetrate sexual violence. This relationship was first demonstrated in Bohner's 1998 study, which demonstrated that when participants completed a rape myth questionnaire before answering rape proclivity questions, the association between the two variables was stronger than for participants in a comparison group who did not complete the rape myth questionnaire. The authors posit that these findings indicate a causal relationship, as the association between the constructs is stronger for individuals when the antecedent beliefs, rape myths, were more salient and cognitively available to trigger rape proclivity beliefs. As the authors explain, "potential causal variables such as RMA [rape myth beliefs] can exert an effect on behavioral intentions only to the extent that it is cognitively assessable—the relationship between RMA and RP [rape proclivity] should be heightened if the causal variable is made accessible" (Bohner et al., 2005; p. 819). After the initial study in 1998, Bohner and colleagues replicated their findings in two additional studies (Bohner et al., 2005; Bohner et al., 2006).

Bohner et al.'s studies (1998; 2005; 2006) provide preliminary evidence that rape myth beliefs are an antecedent to proclivity to perpetrate sexual violence and offer a foundation for additional exploration. Their studies have been cross-sectional in nature,

and there have been no longitudinal studies examining whether rape myth beliefs over time is a causal factor in rape proclivity. Indeed, there have been few studies examining rape proclivity that are not correlational designs, wherein rape proclivity was correlated with another variable (Drieschner & Lange, 1999). Longitudinal studies are needed in order to examine whether one variable truly precedes another variable over time in order to establish temporal causation. In addition, while studies have hypothesized and demonstrated that rape myth beliefs predict rape proclivity, they have not examined the reverse relationship, namely: is rape proclivity a causal factor in rape myth beliefs? That is, is the relationship a reciprocal one wherein rape myth beliefs provide a causal link to rape proclivity and vice versa? It could be that the relationship is complex, not just unidirectional, and as one belief becomes stronger over time, the beliefs feed off each other, with each belief reinforcing the other.

The Current Study

This study will address the gaps in the current research field by using longitudinal data to examine a causal link of rape myth beliefs to rape proclivity, as well as the converse relationship: rape proclivity's relationship with rape myth beliefs. This paper will address the following question and corresponding hypotheses:

Research question: What is the relationship between rape myth beliefs and proclivity to perpetrate sexual violence beliefs over time?

Hypothesis 1: Over time, rape myth beliefs and proclivity to perpetrate sexual violence will demonstrate autoregressive effects, indicating stability of the constructs.

Hypothesis 2: There will be reciprocal causality between rape myth beliefs and proclivity to perpetrate sexual violence indicating causality between the constructs over time.

Methods

Parent Study

Procedures. The data for this study are four waves of a larger longitudinal study conducted at a large public university in a Mid-Atlantic state of the United States. The randomized, quasi-experimental study tested the effectiveness of a peer theater program in relation to undergraduate students' bystander interventions. All participants viewed the peer theater presentation, and were randomized into the experimental or comparison group. The experimental group then worked in small groups with the peer educators two more times. The study was approved at the time of data collection by the university's Institutional Review Board (IRB). For a full description of the intervention and the methods used, see McMahon, Winter, et al. (2015).

Participants. Incoming first-year students were recruited for the study at orientation sessions between June 2010 and August 2010. If they participated, they were entered into a raffle for a television or iPad. Informed consent was provided and students completed an anonymous pre-intervention survey before viewing the peer-theater presentation at Time 1 (T1). To make participation anonymous, participants created their own unique code based on personal demographic information.

Study design. At T1, 4,311 students participated. In early September the online follow-up survey at time 2 (T2) was completed by 2,021 participants who agreed to participate in the longitudinal study. Stratified random sampling was used to assign

students to the experimental or comparison group. The experimental group participated in small group skill-building with the peer educators, while the comparison group had no further engagement with the peer educators. Because those in the experimental group were asked to attend two additional peer-education sessions, higher attrition was expected in this group and sampling was weighted appropriately: the experimental group (n = 1,224) represented 60% of randomized sample and the comparison group (n = 797) represented 40% of the randomized sample. In December of 2010, February/March 2011, and September 2011, all participants, both the experimental and comparison groups, were invited to take a third (T3), fourth (T4), and fifth (T5) online survey and received a payment for survey completion and any peer-theater performance viewed (experimental group only).

Participants. An intention-to-treat design was used for this study which includes participants who were randomized into the experimental study design, even those who were lost at follow-up (Armijo-Olivo, Warren, & Magee, 2009; Hollis & Campbell, 1999). As such, the sample includes: 1) all participants who were randomly assigned to either the comparison or experimental group after the first follow-up survey (T2) and 2) had at least one follow up survey with an identification code that could be matched to the pretest survey (T1). A total of 1,390 students (837 in the experimental group and 553 in the comparison group) of the 2,021 participants who completed T2 were able to be matched to T1 (69%). Of these participants, 38% were male and 62% were female, and less than one percent identified as another gender or left gender blank (n=7) while another eight participants did not consistently identify as male over all waves and were eliminated from the final sample.

Current Study

  Sample. The current study focuses on this T2–T5 panel data to examine the

relationship between rape myths and rape proclivity. As the focus of this study is on risk

of perpetration, and as most sexual assault is perpetrated by males (Cantor & Thomas,

2015; Krebs et al., 2016), only the male sample was used for this study. The final sample

consisted of 513 respondents. Of these participants, 49% identified as White, 34% as

Asian, 7% as Latino, 4% as Black, and 7% as other.

  Measures. *Rape myth beliefs***.** A seventeen-item scale, a modified version of the

Illinois Rape myth beliefs Scale (McMahon & Farmer, 2011), was used in this survey.

For each item, agreement was rated on a 5-point scale ranging from *1 (Strongly*

Disagree) to *5 (Strongly Agree*) on questions such as "If a girl goes to a room alone with

a guy at a party, it is her own fault if she is raped". A confirmatory factor analysis was

previously conducted for this scale, indicating a five-factor solution, with the following

factors*: 1) RM 1: she asked for it* (4 items $\alpha = .70$ at T1)*; 2) RM 2: it was not really rape*

(3 items $\alpha = .77$)*; 3) RM 3: he did not mean to due to intoxication* (2 items $\alpha = .64$)*; 4)*

RM 4: he did not mean to (3 items $\alpha = .66$)*; and 5) RM 5: she lied* (5 items $\alpha = .81$)*.* The

fit for this model was acceptable: RMSEA = .059; CFI = .923; TLI = .897) (T. A. Brown,

2006). Some items were reverse-coded so that higher scores on all subscales signify

higher rape myth beliefs.

  Proclivity to perpetrate sexual assault. Rape proclivity was measured through

two questions. The first asked participants, "*How likely would you be to force another*

person to do something sexual even if she didn't want to, if you were assured that no one

would know and that you could in no way be punished?" This question is from the

Attraction to Sexual Aggression Scale (Malamuth, 1989). The second question asked,

"*How likely would you be to have sex with another person who was too intoxicated to*

resist your sexual advances, if you were assured that no one would know and that you

could in no way be punished?" This item was created using Malamuth's question

combined with a question from the Perpetrator History scale (Lisak et al., 2000). The

response options were *1 (Not at All Likely), 2 (Somewhat Unlikely), 3 (Neutral), 4*

*(Somewhat Likely), a*nd *5 (Extremely Likely)*. The two items were summed to create a

composite rape proclivity variable.

Intervention. Participants' assignment to either the experimental or comparison

group was included as a control variable.

Missing Data. Of the total sample, who were randomly assigned to either the

experimental or the comparison group after T2 and had at least one subsequent time point

with an accurate identification code, 96% had complete data on the outcome measures at

T1, 83% at T2, 66% at T3, 58%, at T4 and 52% at T5. Multiple imputation using

maximum likelihood (ML) in AMOS, was used to handle missing data. As the amount of

missing data increases, multiple imputation using ML provides less biased parameter

estimates and standard errors than listwise or pairwise deletion (Newman, 2002).

Additionally, multiple imputation using ML is recommended for latent variables (rape

myth beliefs in this study).

Analysis. Four models were tested to see if reciprocal causality exists between

rape myth beliefs and proclivity to perpetrate sexual violence over time. Using maximum

likelihood estimation procedures in AMOS 22 to preform structural equation modeling,

data from T2 to T5 were tested to see if reciprocal causality exists among the two

variables of interest: rape myth beliefs and proclivity to perpetrate sexual violence (Arbuckle, 2007). Four models were compared: 1) Model 1, the baseline model, tested autoregressive effects with rape myth beliefs at T2 predicting rape myth beliefs at time T3, T4 and finally predicting rape myth beliefs at T5. Similarly, proclivity to perpetrate sexual violence at T2 was tested to see if it predicted proclivity to perpetrate sexual violence at T3, T4 and T5. 2) Model 2 tested autoregressive effects of both variables—rape myth beliefs and rape proclivity—along with rape myth beliefs at T2, T3, and T4 predicting proclivity to perpetrate at future times (T3-T5). 3) Model 3 tested the converse relationship: autoregressive effects and proclivity to perpetrate sexual violence at T2, T3, and T4 predicting future rape myth beliefs at T3, T4, and T5. 4) The final model, Model 4, the fully cross-lagged model, tested autoregressive effects and rape myth beliefs at T2, T3, and T4 predicting future rape proclivity (T3-T5) and rape proclivity predicting later rape myth beliefs. In order to control for the effect of the intervention, if the participants were assigned to the experimental or comparison group, group status was entered as an exogenous variable predicting rape myths and rape proclivity at T3-T5.

Using methods from prior research studies that employed cross-lagged panel analysis (Christens, Peterson, & Speer, 2011), including a previous peer-reviewed study that uses the same data as this study (McMahon, Peterson, et al., 2015), the following variables were correlated with each other: 1) the baseline variables including the control variable; 2) the residual terms associated with all variables after T2; and 3) the error terms associated with measurement of rape myth beliefs at T2 and all later time points. The errors were correlated, since it was expected that measurement error factors would be the same across all time points (Christens et al., 2011; McMahon, Peterson, et al., 2015).

Finally, direct paths were hypothesized between variables measuring rape myth beliefs and proclivity to perpetrate. The four models were tested to determine which best fits the data. The following model fit indices were used: Chi-Square (X^2), the Comparative Fit Index (CFI), the Normed Fit Index (NFI) and the Root Mean Square Error of Approximation (RMSEA). Cut-off points suggested by prior researchers include non-significant X^2 values and values greater than .95 for both the CFI and NFI and finally, lower RMSEA values indicate better model fit (Hu & Bentler, 1999). General guideline for RMSEA outline that less than .05 is a good fit, .05-.08 is an acceptable fit, .08-.10 is a marginal fit and greater than .10 is a poor fit (Browne & Cudeck, 1992).

Results

This study tested four models to see if reciprocal causality existed between rape myth beliefs and rape proclivity (see Figure 6). First, Model 1 tested autoregressive effects with rape myth beliefs at T2 predicting rape myth beliefs at T3, which in turn predicted rape myth beliefs at T4 and T5. Rape myth beliefs at each time point predicted future rape myth beliefs. Similarly, rape proclivity at T2 was modeled to predict rape proclivity at T3, and each time point predicted a future time point of rape proclivity. Model 2 tested autoregressive effects, along with rape myth beliefs at T2, T3 and T4 predicting rape proclivity at future times (T3, T4, T5). Conversely, Model 3 tested autoregressive effects and rape proclivity at T2-T4 predicting future rape myth beliefs. Finally, Model 4, the fully cross-lagged model, tested autoregressive effects and rape myth beliefs predicting future rape proclivity and rape proclivity predicting future rape myth beliefs (see Figure 6).
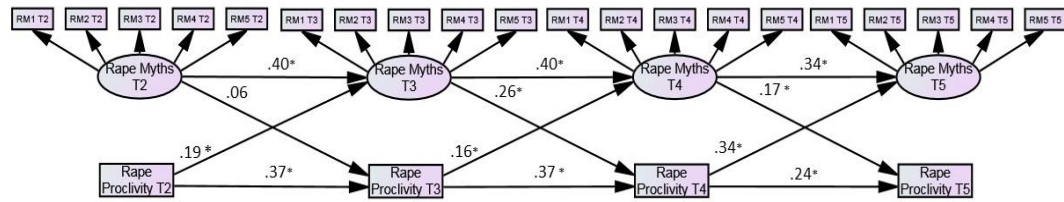
*P<.001; figure shown without error, residuals or control variables

Figure 6: Fully Cross-Lagged Model with Autoregressive and Reciprocal Effects between Rape myth beliefs and Rape Proclivity

Across all models, the fit indices showed a good fit to the data (see Table 5). Model 1 indicated a good measurement model for rape myth beliefs along with stability of the constructs of rape myth beliefs and rape proclivity over time. Model 4 had the best fit indices, including a CFI and NFI above to the suggested cut-off level of .9 (CFI=.93; NFI=.91) and a RMSEA of .06 (an acceptable fit, (Browne & Cudeck, 1992). The X^2 was significant across all models, as is expected with large samples, and does not necessarily indicate a poor model fit.

Table 5: Model Fit Indices for all Four Models

Test	Model 1: baseline with autoregressive effects	Model 2: autoregressive effects and rape myth beliefs predicting rape proclivity	Model 3: autoregressive effects and rape proclivity predicting rape myth beliefs	Model 4: fully cross-lagged model
CFI	.92	.93	.93	.93
NFI	.89	.90	.90	.91
RMSEA	.07	.07	.07	.06
X2 Value	805.90	761.70	750.06	699.81
Df	232	229	229	226
P value	.000	.000	.000	.000

Difference in X^2 Test

Model Compared	----	1	1	3
Change in X^2	----	44.20	55.84	50.25
Change in Df	----	3	3	3
P<	----	.001	.001	.001

The X^2 difference tests indicated that Model 2, compared to the baseline model, Model 1, fit the data significantly better X^2diff (2) = 44.20 $p<.001$. Similarly, Model 3 compared to the baseline model provided a better fit to the data, X^2diff (2) = 55.84 $p<.001$. Because Model 3 provided a better fit than Model 2 as the X^2 value was slightly lower, this model was used for comparison to Model 4. Model 4, compared to Model 3, fit the data significantly better X^2diff (2) = 50.20 $p<.001$. Additionally, in Model 4 all paths except one were significant at the $p<.001$ level indicating a good model fit. The significant, standardized regression coefficients, see Table 6, ranged from .16 to .40 with stable autoregressive effects indicating stability of the constructs over time. Finally, the T2 measures of rape myth beliefs and rape proclivity predicted future time points of these constructs, signifying a reciprocal relationship between the constructs except for rape myths at T2 predicting rape proclivity at T3.

Table 6: Associations between Variables in the Cross-Lagged Model

Path			Standardized Regression Estimate	Unstandardized Regression Estimate	S.E.	*p*-value
Rape Myths T3	←	Rape Myths T2	0.40	0.47	0.06	***
Rape Proclivity T3	←	Rape Proclivity T2	0.37	0.40	0.05	***
Rape Myths T3	←	Rape Proclivity T2	0.19	0.18	0.04	***
Rape Proclivity T3	←	Rape Myths T2	0.06	0.08	0.06	0.24
Rape Myths T4	←	Rape Myths T3	0.40	0.41	0.05	***
Rape Proclivity T4	←	Rape Proclivity T3	0.37	0.38	0.04	***

Path			Standardized Regression Estimate	Unstandardized Regression Estimate	S.E.	*p*-value
Rape Myths T4	←	Rape Proclivity T3	0.16	0.15	0.04	***
Rape Proclivity T4	←	Rape Myths T3	0.26	0.30	0.05	***
Rape Myths T5	←	Rape Myths T4	0.34	0.35	0.05	***
Rape Proclivity T5	←	Rape Proclivity T4	0.24	0.22	0.04	***
Rape Myths T5	←	Rape Proclivity T4	0.34	0.36	0.04	***
Rape Proclivity T5	←	Rape Myths T4	0.17	0.20	0.05	***

***P<.001

All but one of the pathways in Model 4 were significant. In terms of autoregressive effects, all pathways were significant ($p <.001$) with rape myths at each time point predicting future rape myth beliefs. The magnitude of these standardized paths ranged from .34 to .40 suggesting stability of construct over time. Similarly, for rape proclivity, all autoregressive paths were significant ($p <.001$), and the standardized regression coefficients ranged from .24 to .37 demonstrating construct stability. With regards to the reciprocal effects, rape proclivity at T2-T4 predicted rape myths at T3-T5 with standardized regression coefficients from .16 to .34 ($p <.001$) in size. Finally, rape myths predicted rape proclivity at T3 ($B = .26$; $p <.001$) and T4 ($B = .17$; $p <.001$) but not at T2 ($B = .06$; $p>.05$, ns).

Discussion

This study is the first known to examine the relationship between rape myth beliefs and proclivity to perpetrate over time. Hypothesis 1 for this study was that the two constructs being investigated here, rape myth beliefs and rape proclivity, would show autoregressive effects over time, indicating stability of the constructs. This hypothesis was supported: rape myth beliefs predicted itself over time as did rape proclivity, suggesting stability of the constructs. Hypothesis 2 was that reciprocal causality between rape myth beliefs and proclivity to perpetrate sexual violence would be demonstrated over time. This hypothesis was supported, indicating that rape myth beliefs predicted rape proclivity at later time points and vice versa. The findings concerning reciprocal causality indicate that the relationship between the two constructs is complex and multifaceted. Using longitudinal data, this study demonstrates an association between the two constructs over time: men who accept rape myths at a given time point are more likely to

show rape proclivity at future time points, indicating a temporal sequence. The same was found for rape proclivity, with rape proclivity at early time points being associated with rape myth beliefs at later time points.

These results held up at all time points except at T2 when rape myths did not predict rape proclivity at T3. At other time points tested within this study (T3 and T4), reciprocal causality for these two constructs was found. It is unclear why T2 did not produce significant and similar results to the other time points. All the participants, not just the experimental group, viewed the peer-led theater performance, which aimed to increase bystander behaviors and to combat these type of beliefs related to sexual assault prior to completing the T2 survey (at T1). Perhaps the peer theater performance intervention affected the strength of the rape myth measures at T2, diminishing its predictive power. Additional research is needed, both to replicate the significant findings from this study and to examine if in other samples, rape myths predict rape proclivity over time.

The significant findings from this study expand results from previous studies that have shown that rape myth beliefs predict rape proclivity. Prior to this current study, all investigations on the association between rape myth beliefs and proclivity to perpetrate sexual violence were cross-sectional, and no researchers had examined the existence of a reciprocal relationship between the constructs. The current study addresses this gap in the research field through longitudinal data and demonstrates reciprocal causality exists between rape myth beliefs and rape proclivity.

These findings have implications for prevention programming on college campuses. In order to comply with federal mandates and protect students, institutions of

higher education must implement programs aimed at preventing sexual violence ("The Campus Sexual Violence Elimination(SaVE) Act," 2019). Campus prevention programs often target attitudes such as rape myth beliefs for intervention. Indeed, reducing rape myth beliefs is an outcome that many prevention programs measure as an indicator of success (for reviews of sexual assault prevention programing with rape myth measures see (Breitenbecher, 2000; Katz & Moore, 2013; Vladutiu et al., 2011). Rape proclivity has been less studied, but the results of this study indicate that it is both an important precursor belief to rape myth beliefs as well as an outcome of rape myth beliefs. As such, sexual violence prevention programs may need to address men at higher risk of sexual assault, such as those with higher rape myth beliefs and those who demonstrate rape proclivity, in order to reduce perpetration of sexual violence on campuses nationwide. As both rape myth beliefs and rape proclivity predict each other over time, and are both linked to sexual violence perpetration, it is important to find methods of reducing or eliminating rape myth beliefs in college men in order to reduce proclivity to perpetrate sexual violence which ultimately increases the risk of committing sexual violence. Additionally, this study demonstrates that rape proclivity predicts rape myth beliefs over time suggesting that men at risk of sexual violence increase their risk of committing such violence through a complex and reciprocal relationship with beliefs related to perpetration.

While shedding light on possible new directions for prevention programming, the findings of this study might also help improve the intended outcomes of prevention programming. Currently, few prevention programs have proven effective at reducing sexual violence perpetration (Tharp et al., 2012). This may be in part due to a lack of

clarity about how to tailor prevention efforts toward students with differing pre-existing attitudes and beliefs, such as rape myth beliefs and rape proclivity beliefs, that create varying risk-levels. Thompson and colleagues (2015) found that risk-factors for campus sexual assault perpetration were not static over time and corresponded to perpetration behaviors. Some researchers have called for tailoring prevention programming to groups of men who may have differing risks of sexual assault perpetration (Salazar et al., 2018; Thompson & Morrison, 2013), including for ". . .factors such as their (men's) level of attitudinal support for sexual aggression and their professed intent to engage in this behavior." (Swartout, Swartout, et al., 2015). Understanding how risk of perpetration is affected by rape myth beliefs and rape proclivity as they reinforce each other over time is important in improving sexual assault prevention efforts and may be used to tailor prevention programming specifically for men at higher risk of sexual assault perpetration.

Of the limited research into prevention programming with high-risk men, one study found that while low-risk men's rape myths and proclivity to perpetrate (using a measure of "sexually coercive behavioral intentions" that examined rape proclivity for four types of sexually violence behaviors) were significantly lowered by prevention programming, the same was not true for high-risk men (Elias-Lambert & Black, 2015). These men, identified as high-risk due to self-reports of past sexual aggression, did not demonstrate lower rape myths or rape proclivity after the prevention programming. The authors hypothesize that for high-risk men, attitudes and beliefs related to sexual violence and viewing women as potential targets of such, may be more deeply engrained and difficult to modify, suggesting the need for differential prevention efforts directed at high-risk men. The findings from the current study likewise suggest that over time, men's

beliefs related to sexual violence, namely rape myth beliefs, reinforce and increase rape proclivity, a risk-factor for perpetration, suggesting that beliefs and risk-factors for perpetration of sexual violence are mutable and reinforce each other creating an ever-growing risk for perpetration.

Considering the differing risk-factors for the perpetration of sexual assault and how such risk-factors may influence uptake and receptiveness to prevention interventions, it is important to assess risk among individuals participating in prevention efforts that target attitudes and beliefs associated with perpetration such as rape myths and rape proclivity beliefs. Additionally, it may be that different prevention efforts are needed that account for risk and tailor content and messaging accordingly. Finally, due to the longitudinal relationship between the risk-factors examined in this study, traditional "one-shot" prevention programming may not be appropriate with men who endorse high-risk beliefs related to perpetration such as rape myths and rape proclivity. As these constructs predict each other over time, it may be that prevention programming should be implemented at multiple time points, not just in a "one-shot" dose, in order to disrupt the negative feedback cycle whereby these beliefs mutually reinforce each other over time.

Limitations and Future Directions

This study was not without limitations, and the results should be interpreted with these limitations in mind. First, missing data was an issue within this study due to the number of participants who could not be matched over time with their self-generated identification code. Self-generated identification codes are useful within research settings to reduce social desirability bias (Schnell, Bachteler, & Reiher, 2010), which may be a particular issue surrounding attitudes related to campus sexual violence perpetration.

However, in this study, the self-generated identification codes were often not useful in matching participants and resulted in the removal of a number of participants from the analysis.

Second, the measure used for proclivity to perpetrate sexual violence in this study, based on other questions within the field of perpetration (Lisak et al., 2000; Malamuth, 1989), is not ideal. In this study, the rape proclivity measure asked two questions to which participants indicated their level of agreement. Newer methods of measuring proclivity to perpetrate have been developed and used by Bohner and colleagues (Bohner et al., 2009; Bohner et al., 2010; Bohner et al., 1998; Bohner et al., 2006). Based on these studies, many researchers investigating rape proclivity use scenario-based questions, wherein participants read a brief scenario and then are asked how likely they would be to commit future sexual violence in such a situation (e.g., (Romero-Sánchez et al., 2017; Strain, Hockett, & Saucier, 2015). As the field has shifted towards this method of measuring rape proclivity, scenario-based measures might be preferred for future investigations into questions regarding proclivity to perpetrate sexual violence. Additionally, these new methods might help address concerns regarding social desirability bias. As both rape myth beliefs and rape proclivity are constructs based on self-reports surrounding controversial attitudes, in all likelihood some participants are affected by social desirability bias and falsify or reduce the magnitude of their beliefs when completing questionnaires about attitudes which are not widely accepted such as these.

Despite the limitations of the current research study, the findings indicate several areas that warrant further investigation. First, as this is the first study of its kind

examining reciprocal causality between rape myth beliefs and rape proclivity, replication of our findings using other longitudinal data is needed. The results from this study suggest a reciprocal relationship between the constructs under investigation; however, this is a single study. Additional research is needed to verify the findings of this study. Furthermore, as this is the first study to examine any relationship between rape myth beliefs and rape proclivity using longitudinal data, further examinations on these constructs using multiple time points are needed.

Another area for future research is in predicting behaviors of sexual violence perpetration from these constructs. This study only examined the relationship between rape myth beliefs and rape proclivity and did not predict other distal outcomes from these variables. However, ultimately these variables are hypothesized to predict future sexual violence perpetration. Research is needed to test these relationships and investigate how a reciprocal causal relationship between rape myth beliefs and rape proclivity is related to future sexual violence perpetration among men.

Conclusions

Attitudes such as rape myth beliefs are commonly hypothesized to be the antecedents to both intentions to commit a behavior as well as the actual act of committing the behavior itself. Furthermore, researchers have concluded that rape myth beliefs are associated with proclivity to perpetrate sexual violence but had never examined if rape proclivity might predict rape myth beliefs. This study is the first of its kind using longitudinal data to examine the relationship between rape proclivity and rape myth beliefs over time. The results of this study indicate that rape proclivity and rape myth beliefs predict each other over time, existing in a reciprocal relationship. These

results can inform sexual violence prevention efforts in order to better address beliefs associated with sexual violence perpetration with the ultimate aim of eliminating sexual violence perpetration before it occurs.

Acknowledgments

Chapter 6: Discussion and Conclusion

Summary of Key Findings

The overall purpose of the collection of papers in this study is to develop a more nuanced understanding of incoming college men's rape myth beliefs based on the hypothesis that male students enter college with a range of differing attitudes and beliefs regarding sexual assault. The specific aims for the overall study included 1) categorizing incoming male college students' rape myth beliefs into differing subgroups (Paper 1); 2) identifying how two risk-factors and a protective-factor of sexual violence perpetration relate to profiles of rape myth beliefs among college men and predict proclivity to perpetrate sexual violence (Paper 2); and 3) understanding the causal relationship between rape myth beliefs and proclivity to perpetrate sexual violence (Paper 3). Thus, the three papers in this study work together to examine variables related to perpetration of sexual violence, namely rape myths and rape proclivity, in order to investigate these constructs and their nuances in a manner that may help inform campus sexual violence prevention efforts.

This chapter summarizes the key findings, implications and limitations of this study in order to provide a snapshot view of how the findings may inform campus sexual violence prevention efforts and improve the outcomes of these efforts in the form of reduced sexual violence perpetration rates.

Paper 1: Rape myths among incoming college men: A latent profile analysis. This paper examines heterogeneity within types (subscales) of rape myths endorsement by utilizing person-centered analysis that accounts for variation among subgroups of men with differing levels and types of rape myth beliefs. Three research questions were

answered in the course of study: 1) Are there meaningful patterns across individuals in terms of the types (subscales) of rape myths they endorse? 2) If there are meaningful patterns across individuals, how can male college students be categorized into profiles based on the type of rape myths individuals endorse? And 3) what are the characteristics of the subgroups of male college students related to participation in all-male peer groups?

The findings from this study demonstrate that men entering college can be classified into four subgroups based on their varying levels of rape myth beliefs: *Class 1, Low Rape Myths:* men within this subgroup had the lowest level of rape myth beliefs across all types of rape myth beliefs. *Class 2, Medium Rape Myths:* participants falling into this class had mid-levels of rape myth beliefs. *Class 3, High Specific Rape Myths:* this subgroup of men had extreme levels of rape myth beliefs in two of the five subtypes of rape myth beliefs. *Class 4, High Rape Myths*: men within this profile had the highest levels of rape myth beliefs. Membership in any of these four classes was not predicted by whether men intended to join an all-male peer group, specifically a fraternity or athletic team. Overall, the results from this study indicate that there is heterogeneity among rape myth beliefs held by college men as they enter college, suggesting that men differ on the level at which they endorse rape myth and the types of myths they endorse.

Paper 2: Profiles of men's rape myth beliefs and rape proclivity. This study builds on the results from the prior paper by continuing to examine the four subgroups of men, based on their rape myth beliefs, discovered in Paper 1. This study addresses two research questions. First, is membership with the subgroups, based on men's rape myth beliefs, differentially associated with proclivity to perpetrate sexual violence? Second, within the subgroups, based on rape myth beliefs, is proclivity to perpetrate affected by

other variables, one protective-factor or two risk-factors? In summary, this study tested if the four subgroups/profiles predicted rape proclivity and within these profiles if rape proclivity was affected by bystander attitudes (a protective-factor) and intentions to join a fraternity and/or an athletic team (risk-factors).

The results from this study indicate that some subgroups of men, based on their rape myth beliefs, have higher rape proclivity mean scores than other subgroups. Specifically, men in those groups with mid-level and high levels on some or all of the rape myth beliefs had higher rape proclivity mean scores compared to those men in the subgroup with the lowest levels of rape myth beliefs. In some of the subgroups, rape proclivity was affected by bystander attitudes, a protective-factor, and intention to join a fraternity, a risk-factor. The effects were in the predicted direction such that bystander attitudes decreased rape proclivity within some subgroups, while intention to join a fraternity increased rape proclivity within some subgroups. Intention to join an athletic team was not found to be associated with rape proclivity within the four profiles of college men.

Paper 3: The reciprocal effects of rape myth beliefs and rape proclivity. This study continued to examine rape myth beliefs and rape proclivity among college men by using longitudinal data to investigate the predictive link of rape myth beliefs to rape proclivity. Since it is the first study of its kind to examine a reciprocal relationship between rape proclivity and rape myth beliefs, namely if the two constructs predict each other over time, this paper addresses a gap within the existing research body. This paper answers the research question, what is the relationship between rape myth beliefs and proclivity to perpetrate sexual violence over time?

A reciprocal relationship between rape myth beliefs and rape proclivity was found within this study, indicating that these two constructs predict each other over time by using four time points. At each time point, except one, rape myth beliefs predicted rape proclivity at a future time point and conversely, rape proclivity predicted future rape myth beliefs at all time points. These findings indicate a reciprocal relationship exists between the constructs.

Synthesis of findings. The findings from these three papers point to several important conclusions regarding attitudes and beliefs related to sexual violence perpetration: specifically, rape myth beliefs and rape proclivity. While much of the past research into rape myth beliefs has examined this construct as a monolithic one, this study builds on the limited existing research looking at rape myth types (subscales) (Carroll et al., 2016; McMahon, 2010, 2015b; Sleath & Bull, 2015) to demonstrate heterogeneity among both level and type of rape myth beliefs endorsed by men entering college. Men can be grouped into four profiles that differently predict rape proclivity. These findings build upon the existing research to suggest that men have differing patterns of rape myth beliefs across the rape myth subscales.

While the four differing profiles of rape myth beliefs stand alone as a thought-provoking finding, Paper 2 adds significance and meaning to this finding by discovering how profile membership is related to rape proclivity. Rape proclivity has been linked in research to perpetration of sexual violence (DeGue & DiLillo, 2004; Gidycz et al., 2011; Malamuth, 1981) and thus, is an important risk-factor for perpetration. The finding that subgroups of men of with mid or high levels of endorsement on some or all of the rape myths had higher rape proclivity scores, compared to men with the lowest levels of rape

myths, indicates that subgroup membership is an important indicator for risk of perpetration. Additionally, the relationship between rape myth beliefs and rape proclivity is modifiable. Bystander attitudes can help to reduce the impact of subgroup membership on rape proclivity within some subgroups, while intention to join a fraternity increases the relationship with rape proclivity within some subgroups. Thus, the findings from Paper 1 and 2 establish not only that there are subgroups of men based on their rape myth beliefs but also the significance of these groups in relationship to rape proclivity and factors that can modify this relationship to rape proclivity.

Paper 3 extends the examination of the relationship between rape myth beliefs and rape proclivity by using data from multiple time points to discover a reciprocal relationship between rape myth beliefs and rape proclivity over time. Although several studies have examined rape myths as the antecedent to rape proclivity (Bohner et al., 2009; Bohner et al., 2010; Bohner et al., 2006; Chapleau & Oswald, 2010; Süssenbach et al., 2013), this is the first paper to explore a reciprocal relationship between the two constructs and confirm rape myth beliefs association with rape proclivity over multiple time points. While Papers 1 and 2 indicate that rape myths profiles are an important predictor of rape proclivity with cross-sectional data, Paper 3 adds to this finding by demonstrating that rape myths predict rape proclivity at future time points, suggesting a criterion for causality, and additionally that rape proclivity predicts rape myth beliefs over time, a new finding. This last finding suggests that the relationship between rape myth beliefs and rape proclivity is not unidirectional but rather is complex and multifaceted. Together the findings from these three papers suggest that rape myth beliefs are heterogeneous, closely associated with the construct of rape proclivity, and the

relationship between these two constructs is modifiable by bystander attitudes and intention to join a fraternity.

Implications of the Study

Prevention interventions focusing on stopping perpetration of sexual violence are generally ineffective (DeGue et al., 2014) and some researchers have pointed out a lack of interventions addressing perpetrators (Mahoney, Gielen, Bailey, & Gabel, 2019). However, in order to truly reduce sexual violence rates, efforts should focus on preventing perpetration as a method of eliminating sexual violence before it even starts (DeGue et al., 2014). Such efforts shift the focus away from victims of sexual violence, who are often the targeted audience for prevention efforts focused on self-defense or alcohol use, onto the perpetrators who commit sexual violence. While much of the research on interventions to reduce sexual violence remains focused on victims, not perpetrators (DeGue et al., 2014), this focus creates a gap in our understanding of what causes sexual violence perpetration and how to prevent it.

The results of this study can be used to understand several attitudes and beliefs linked with perpetration, how these attitudes and beliefs are associated with each other, and implications for primary prevention efforts. The results from this study suggest that targeting rape myths continues to be important in campus sexual violence prevention efforts (Anderson & Whiston, 2005; Yapp & Quayle, 2018). Furthermore, tailored interventions targeting specific subgroups of men with problematic levels of rape myth beliefs may lower rape proclivity and thus, improve prevention outcomes by ultimately reducing these problematic beliefs among men with elevated rates of rape myth beliefs, by working towards reducing perpetration before it occurs. The finding that subgroups of

men, based on their rape myth beliefs, are associated with rape proclivity is a novel finding and suggests the importance of further investigations into rape myth beliefs using person-centered methods in order to investigate outcomes related to perpetration. Using this approach, this study supports calls from researchers to target high-risk groups with prevention efforts in order to limit the potential of individuals within these groups of developing into offenders (Welsh & Farrington, 2012). Furthermore, as online sexual violence prevention programs become increasingly common on campuses, such methods might provide a unique platform to deliver programming that can be tailored using feedback collected during pretest assessments regarding level and type of rape myth beliefs endorsed by the individual.

Other results from this study indicate that fraternity men might be targeted for more intensive prevention efforts as the relationship between subgroups of men and rape proclivity is increased within some subgroups if the men in those groups also intended to join a fraternity. Other research has also indicated fraternity membership is a risk-factor for sexual violence (Sarah K. Murnen et al., 2002; Tharp et al., 2012); this study adds to the prior research by suggesting that certain subgroups of men might be a greater risk of perpetration and this risk is further heightened if they intend to join a fraternity (Seabrook et al., 2018). These men could benefit from tailored intervention to address their rape myth beliefs. Conversely, bystander attitudes might serve as a protective-factor against perpetration within some subgroups of men, as the association with rape proclivity is decreased by positive bystander attitudes. This finding is promising because bystander intervention education approaches have already shown to be effective (Banyard, 2015; Banyard, Moynihan, & Plante, 2007; Coker et al., 2017; Coker et al., 2015) and are being

widely implemented on college campuses. These findings suggest another mechanism through which bystander interventions may prevent sexual violence; namely, by lowering risk for perpetration through modifying attitudes and beliefs related to perpetration of sexual violence, as indicated by the finding that bystander attitudes modify rape myth beliefs association with rape proclivity.

Finally, this study adds new understanding to the relationship between rape myth beliefs and rape proclivity, with the finding that these two constructs predict each other over time. These findings are important in our conceptual understanding of the two constructs which may help inform efforts to eliminate or reduce these beliefs as part of a larger sexual violence prevention intervention. Given that rape myth belief endorsement was predicted by rape proclivity at multiple time points, interventions efforts should aim to disrupt this relationship with multiple sessions and with an understanding that risk for perpetration can be increased as both rape proclivity and rape myth beliefs reinforce each other over time. Thus, traditional "one-shot" prevention programs may be ineffective at reducing these risk-factors and more intensive or tailored multi-session interventions might need to be targeted towards men who hold both rape myth and rape proclivity intentions, attitudes and beliefs. This suggestion is both in line with the principles of effective prevention programming (Nation et al., 2003; Small, Cooney, & O'Connor, 2009) as well as recommendations from other scholars in the area of sexual violence prevention (Anderson & Whiston, 2005; Banyard, 2015; Banyard et al., 2017; DeGue et al., 2014; McMahon, Winter, et al., 2015). These general implications can be used to help improve efforts to stem sexual violence on campus; specific applications of these implications for social workers are outlined in the next section.

Social work implications. Social workers may be in the position of designing and implementing prevention programming for college students on issues of sexual violence. While this study focused on college campuses, the constructs investigated here, rape myth beliefs and rape proclivity, are not limited to college students. Sexual violence prevention efforts are needed in many settings in which social workers are placed including high schools, workplaces, and military settings. The findings of this study may be used more widely to help prevent sexual violence within a range of settings. In addition, social workers need to be aware of the sociocultural factors that lead to sexual violence in order to understand the problem as part of a system-wide problem, rather than an isolated incident (McMahon & Schwartz, 2011). Increasingly with federal legislation mandating prevention programming on campuses, social workers may be called on to use best practices and research-based programs to educate students on sexual violence including education aimed at decreasing rape myth beliefs among students. However, in a literature review of social work research on rape, McMahon and Schwartz (2011) found few social work scholars have focused on sexual violence, and even less work has been done examining sexual violence as a larger societal issue. Understanding of sexual violence perpetration is needed to determine how to prevent campus sexual violence. This study has implication for social workers implementing rape-prevention programming that addresses men's risk of perpetration, especially related to risk-factors including rape myth beliefs. Through an understanding of how profiles of students differ on rape myths, prevention programming implemented by social workers can be improved and tailored for heterogeneous groups. Social workers in the prevention field are in need of a better understanding of how to tailor sexual assault prevention programming in a

manner that is both specific and nuanced to reach possible perpetrators where they are at in their understanding of sexual violence and modify beliefs such as rape myths.

Overall, the findings from this study highlight the importance of focusing on attitudes and beliefs related to sexual violence perpetration in order to reduce the rates of campus sexual assault. While both rape myths and rape proclivity are not new concepts, this study increases our understanding of the complexity of these constructs and suggests new methods of intervening with college men in order to reduce these beliefs while highlighting the importance of breaking the association between rape myth beliefs and rape proclivity in order to ultimately stop men who might be at risk of perpetrating a sexual assault.

Overall Limitations of the Study

While this study makes several important contributions to the understanding of attitudes and beliefs related to sexual violence perpetration, it suffers from several limitations. The first set of limitations concerns the parent study itself. First, due to problems with matching participants over time, the sample of the longitudinal data from the parent study was reduced creating a smaller sample for the current study. Because of the issues with data matching, this study uses an imputed dataset for Paper 3, the longitudinal analysis. Second, the dataset does not contain some of the variables that ideally should be included in a study such as this. For example, the current study used proclivity to perpetrate, rather than actual sexual assault perpetration, because the number of respondents who affirmed perpetration were too few to include in this analysis. Relatedly, all measures used for this study were self-report measures which may be subject to social desirability biases as students know that attitudes and beliefs, such as

rape myths and rape proclivity, are not socially acceptable and as a result, may downplay their own beliefs. Also, the measurement used for proclivity to perpetrate was not ideal and is only composed of two items. Newer methods rely on scenario-based questions (Bohner et al., 2005; Bohner et al., 2010; Bohner et al., 1998; Bohner et al., 2006). For the current study, the variable is constructed from two individual items, not a full scale. Finally, there are limitations around omitted variable bias due to the limited number of variables within this dataset. Many indicators known to be related to sexual assault perpetration, including hostility towards women and hyper-masculinity (Murnen & Kohlman, 2007; Tharp et al., 2012) and alcohol use (Abbey, BeShears, Parkhill, Clinton-Sherrod, & McAuslan, 2004) were not included in this study.

The second set of limitations concern the data analysis conducted for the current study. First, Paper 1 and 2 use cross-sectional data; thus, our ability to conclude anything about direction of relationships between variables is only theoretical. It is not possible to determine if subgroups/profiles of men based on their rape myth beliefs cause rape proclivity, only that the two constructs are associated. Similarly, for the two covariates within the subgroups/profiles and rape proclivity, bystander attitudes and intention to join a fraternity, the direction of the association between the variables cannot be determined. Finally, Paper 1 and 2 examined all-male peer groups. However, as discussed in Paper 2, due to the time point at which the data was collected—as students were just entering college—the measure captures intention to join an all-male peer group, not actual membership within an all-male peer group. Future research should ideally use measures that reflect actual membership in fraternities and/or an athletic team

The final set of limitations are more conceptual and involve the two types of methods employed within this dissertation: 1) person-centered methods (Paper 1) and 2) variable-centered methods (all three papers). While this study indeed utilized two different types of analyses to examine the same data, the two approaches, variable-centered and person-centered, are not as far apart as one might imagine. As Masyn (2013) discusses, there is a " false dichotomy" between the two approaches which is ". . . often flawed by placing person-centered and variable centered approaches in juxtaposition as rival or oppositional approaches when, in fact, they are complementary." (p. 553). Masyn further uses a metaphor of examining a problem from two viewpoints: 1) from the ground, person-centered, to see individuals and unique elements or 2) from the air, variable-centered, to see larger features of the area. But both approaches examine the same problem, just from different angles. Furthermore, within most person-centered analysis studies, variable-centered analyses are also used. The person-centered analysis within this study, LPA, is only one of the analysis methods utilized. However, the follow-up analyses looking at covariates (e.g., bystander attitudes and membership in all-male peer groups) and a distal outcome (rape proclivity) are variable-centered analyses methods. The two approaches are brought together commonly for this very purpose. Variability within the variables included in the LPA is person-centered. However, variability in covariates or distal outcomes is variable centered. Thus, the two approaches are not mutually exclusive but instead rely on each other. Finally, Dayton (1998) points out there are similar divisions between manifest and latent variables and yet those approaches are similarly used together (as is done in Paper 3 of this study) to understand problems from multiple viewpoints.

Despite these limitations, this study examined rape myths through novel methodology and included an important measure of sexual assault perpetration, proclivity to perpetrate. The findings from this study suggest important considerations related to sexual violence perpetration stemming from findings regarding heterogeneity among rape myth beliefs and the relationship between rape myth beliefs and rape proclivity. Future work could build on these findings through examining factors more closely tied to perpetration such as the behaviors men enact within sexual relationships.

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