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RISK FACTORS FOR SEXUAL VIOLENCE AMONG COLLEGE STUDENTS IN
DATING RELATIONSHIPS: AN ECOLOGICAL STUDY

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DEPARTMENT OF HEALTH AND EXERCISE SCIENCE

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Table of Contents

List of Tables	v
List of Figures.....	vii
Abstract.....	viii
Chapter 1	1
Chapter 2	15
Chapter 3	34
Chapter 4	45
Chapter 5	91
References	109
Appendix A Instrument	119

List of Tables

Table 4. 1: List of level and domains included in each level	46
Table 4. 2: Summary of the Reliability statistics of scales.....	50
Table 4. 3: Summary of factor analysis for Sexual Experience scale	51
Table 4. 4: Summary of factor analysis for Drinking Behavior scale	52
Table 4. 5: Summary of factor analysis for Sexual Assertiveness scale	53
Table 4. 6: Summary of factor analysis for mental health status as assessed by K6.....	54
Table 4. 7: Summary of factor analysis for MOS Social Support scale.....	55
Table 4. 8: Summary of factor analysis for Parenting Style Index	56
Table 4. 9: Summary of factor analysis for Model Risk Measure (Peer Deviance).....	57
Table 4. 10: Summary of factor analysis for Model Risk Measures (Peer Deviance) after revising items.....	57
Table 4. 11: Skewness and Kurtosis before and after log transform (N=351).....	60
Table 4. 12: Variation Inflation Factor (VIF) of the constructs used.	63
Table 4. 13: Demographics information of the participants (N=361)	64
Table 4. 14: Categorical data related to Individual, Relationship, Community and Society constructs of Ecological Theory (N=361)	66
Table 4. 15: Prevalence of SV and its types by sex.....	69
Table 4. 16 : Prevalence of SV and its types by sexual orientation	70
Table 4. 17: Parameter Estimates from Binary Logistic Regression for experiencing sexual violence victimization among college students in dating relationships (n=351)	73
Table 4. 18: Parameter Estimates from Negative Binomial Regression for experiencing unwanted sexual contact by college students in dating relationships (n=351).....	77

Table 4. 19: Parameter Estimates from Negative Binomial Regression for experiencing attempted rapes by verbal coercion and physical force by college students in dating relationships (n=347).....	81
Table 4. 20: Parameter Estimates from Negative Binomial Regression for experiencing completed rapes by verbal coercion and physical force by college students in dating relationships (n=351).....	85
Table 4. 21: Parameter Estimates from multiple linear regression for predicting sexual violence by college students in dating relationships (n=347)	89

List of Figures

Figure 1. 1: The ecological model of health promotion intervention.....	6
Figure 4. 1 Linearity of log score of dependent variable against standardized residual	61
Figure 4. 2: Homoscedasticity of Residuals	62

Abstract

Introduction: Amidst the environment of autonomy from parental authority and peer pressure of college life, college students are vulnerable to sexual violence in dating relationships. The American College Health Association (ACHA) now recognizes sexual and dating violence as a serious public health issue that should be addressed by multi-level interventions. According to ACHA 2015, almost 9.5% of undergraduates are documented to have experienced unwanted sexual contacts while 4.1% of undergraduates have experienced attempted or completed rape in past 12 months of college life. With regards to the intimate partner relationship, nearly 11% of females, 6% of males and 17% of transgender have experienced violence (emotional, sexual and physical) in past 12 months. Sexual violence has been documented to be associated with long term health risks like substance abuse, unintended pregnancy and chronic mental illness as well as physical injuries including broken bones, vaginal trauma and bruises. Given that the prevalence is high among college students and is majorly perpetrated by their dating partners, the purpose of the study was to explore the risk factors of sexual violence victimization among college students in dating relationships using ecological model.

Methods: Validated and reliable tools used in previous studies were used to examine risk factors related to four levels of ecological model; individual, relationship, community and societal level, among college undergraduates students aged 18-24 years studying at the University of Oklahoma, Norman Campus. Reliability was assessed using a Cronbach's alpha and construct validity was evaluated using confirmatory

factor analysis for our study population. Participants were recruited to take an online survey circulated through mass emails and emails from the Gender and Equality Center. The circulated survey tool included domains including sexual identity, gender identity, place of residence, inclusion in social organizations, experience of child sexual abuse, characteristics of their dating relationship while in college, sexual assertiveness, their parental involvement, peer deviance, involvement in sexual risk behaviors, social support and perceived discrimination related to four levels of the ecological model.

Results: Approximately 35% of the sample reported experiencing sexual violence in dating relationships. Three out of 10 college students experienced attempted rape while two out of 10 college students had been raped by their dating partners while in college. Significant differences in sexual violence victimization were seen between male and female students for all the types of sexual violence while a difference was reported between heterosexual and LGBTQ students in experiencing at least one type of sexual violence and unwanted sexual contacts. Most of the instrument scales were found to be valid and reliable. Logistic regression results revealed that being a senior, having higher sexual assertiveness, hooking up and perceived discrimination are significant risk factors of experiencing sexual violence by college students in dating relationships while in college. Female gender and having low sexual assertiveness related to the individual level of the ecological model and higher frequency of hooking up related to the relationship level of the ecological model increased the log counts of unwanted sexual contacts, attempted rapes and completed rapes in college students in dating relationships. No constructs related to community level of ecological model was found to have a significant association with sexual violence. Participants' perceived

discrimination was found to increase the incidences of ever experiencing sexual violence while it is significantly associated with decreasing a number of completed rape.

Discussion: The constructs related to individual, relationship and societal level of ecological model were found to have significant association with unwanted sexual contacts, attempted rapes and completed rapes among college students in dating relationships. Participants' gender, sexual assertiveness and engagement in hooking up were found to be most important risk factors for all kinds of sexual violence occurring while in college.

Conclusion: The findings highlight the importance of the use of the ecological model in discovering the variables related to sexual violence victimization among college students in dating relationships. Given the need of sexual violence intervention and prevention on college campuses, consideration of these risk factors while formulating the programs is essential.

Chapter 1

Introduction

Introduction

Involvement in dating relationships and exploring the sexual aspects of such relationships is an important developmental sign of adolescence (Vanwesenbeeck, 2008). However, much of the previous research has shown that experiencing sexual violence is common among adolescents in dating relationships (Krahé, Tomaszewska, Kuyper, & Vanwesenbeeck, 2014). Nearly 15% of college students are reported to be victims of one or more forms of sexual violence, out of which 70% is perpetrated by either their current or ex dating partners while in college (Organization, 2013b; Santos-Iglesias & Sierra, 2012). Sexual violence has been broadly described as “any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed against a person’s sexuality using coercion, by any person regardless of their relationship to the victim, in any setting including but not limited to home and work (Organization, 2013b)

College life is a prime time to learn relationship skills. While some may include constructive conflict strategies to form and maintain relationships, some may include destructive behaviors like violence and abuse (Lee, Reese-Weber, & Kahn, 2014). Makepeace reported for the first time in 1981 that one in five college couples are involved in a violent relationship (Makepeace, 1981). Since then, the number has been increasing and college students are a target population to study violence. Approximately

25% to 40% of college students report some type of violence in their dating relationships, which includes physical, psychological and sexual abuse (Straus, 2004).

College students are vulnerable to sexual violence in dating relationships as most are involved in their first serious relationship during these formative years (Kaukinen, Gover, & Hartman, 2012). Moreover, added autonomy from parental authority, indulgence in health risk behaviors and peer pressure can act as catalysts in initiating and continuing violence within and across the intimate relationship (Kaukinen, 2014). This added environment also makes college students a relevant population to study sexual violence as the incidence of sexual violence is higher among college-aged women than any other population (Brener, McMahon, Warren, & Douglas, 1999). In a 3 year cohort study conducted in the United States, almost 19% of college students experienced at least one form of sexual violence, with females indicating significantly higher rates when compared with males (23.0% vs 11.6%)(Conley et al., 2017).

Terminology like sexual victimization, sexual abuse or sexual assault are used frequently to describe sexual violence in research conducted in the United States and around the world. Due to its broad description, it is classified into 4 categories; (i) unwanted sexual contact (i.e. use of continual arguments, authority or force to coerce the victim into sex play that includes fondling, kissing or petting, but not sexual intercourse) (ii) attempted rape (i.e use of physical force, alcohol or drugs to attempt sexual intercourse but intercourse did not happen) (iii) sexual coercion (i.e. use of authority, argument or pressure to compel victim into sexual intercourse) and (iv) rape

(i.e use of force, alcohol or drugs to coerce the victim into sexual intercourse including oral and anal sex)(Gidycz, Orchowski, King, & Rich, 2008).

Sexual violence has now been regarded as a major public health issue worldwide (Organization, 2013a). A number of research studies on sexual violence have confirmed that 13% to 78% of college women have faced different forms of sexual victimization, some of which meet the legal definition of rape (Fisher, Cullen, & Turner, 2000).

Sexual violence has been treated as a public health problem in the last few decades due to various reasons. Firstly, the magnitude of the problem is so huge that it affects every gender, age group, ethnicity and nationality. The research conducted exclusively in female undergraduates showed that 51.7% of the undergraduates has suffered from one form of sexual violence or the other while the magnitude is high up to 65.6% in Zimbabwe and 67% in Botswana (Rivers, 2000; Shumba, 2001). Across racial and ethnic identity, Blacks and people having mixed race or ethnicity have the greatest prevalence of sexual violence victimization (Coulter et al., 2017).

Second, many of the consequences of sexual violence are health-related. A wide range of physical (Kilpatrick, Resick, & Veronen, 1981) and psychological (Ullman & Brecklin, 2003) consequences are experienced by the victims of sexual violence regardless of its severity. Numerous studies have documented the negative effects that are prevalent in the victims of the sexual violence. Engaging in problematic weight loss behavior (use of laxatives/diet pills, alcohol and tobacco use and suicidal ideation are commonly seen as negative impacts of sexual violence (Gidycz et al., 2008). Sexual violence has been documented to associated with long term risk of health problems like substance abuse (Turchik, 2012), unintended pregnancy and chronic mental illness like

posttraumatic stress disorder and depression (Messman-Moore, Long, & Siegfried, 2000). Rape accounts for about 32,000 unwanted pregnancies each year globally (Gossaye et al., 2003) while sexual coercion and attempted rape account for numerous physical injuries like vaginal trauma, broken bones and bruises (Basile, 2003). Sexual violence has been linked with depression in college women and increased problematic drinking in the college men which can further hamper their social and academic life (Messman-Moore et al., 2000; Turchik, 2012). Victims are at increased risk for academic disengagement, dropping out of classes and school withdrawal (Kaukinen, 2014).

Sexual violence takes a toll on the victim, their loved ones and the society we live in (Basile, 2003). Therefore, we no longer regard this problem as a personal problem of the victim. Sexual violence among dating couple is distinct from other types of violence in many meaningful ways: typically it is assumed to be perpetrated by males and victims are mostly females, it takes place mostly in private setting, victimization occurs in the context of a close and trusted relationship and this issue is aggravated by social norms, cultural laws and culture of silence justifying and supporting men's violence against women (DeGue et al., 2013). The culture of silence is so prominent that only 2% of the victims of rapes or attempted rape confront to the police about the incident (Lehrer, Lehrer, Lehrer, & Oyarzún, 2007). High incidence rate and underreporting of these crimes underscore the fact that sexual violence in colleges are occurring and reoccurring (Conley et al., 2017).

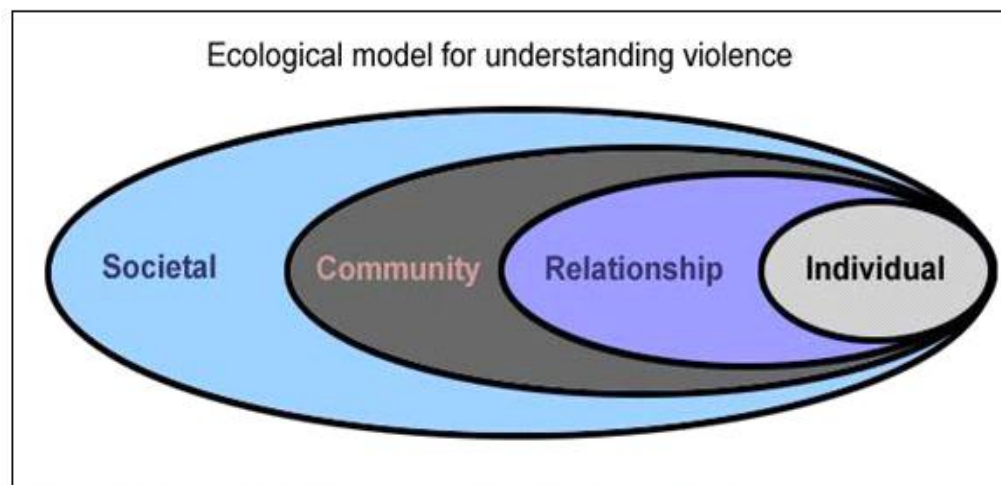
The majority of past studies confirmed the high prevalence of sexual violence among female college students during 1980s and 1990s in the United States (Roze &

Koss, 2001). Recent studies targeted to college students, irrespective of their gender, revealed that a substantial number of males are also the victims of sexual violence (Conley et al., 2017; Tyler, Schmitz, & Adams, 2017). One of its kind research conducted by Freedner et al. confirmed that the odds of sexual abuse and all forms of violence is quite high in sexual minority groups. Bisexual females were twice as likely to have experienced sexual abuse as heterosexual females (Freedner, Freed, Yang, & Austin, 2002). Among the transgender population too, which represent 0.5% of the total population (Meerwijk & Sevelius, 2017), one out of two transgender people experience partner violence while 10% of those have been reported to have experience sexual assaults (James et al., 2016). As this public health issue is ubiquitously present in all genders and is more prominent in population groups that were not included in previous studies, it is now necessary to consider gender and sexual orientation as important demographic factors in analyzing the prevalence and predictors of sexual violence.

The impact of any type of violence is deleterious and hampers the life of the victim, their family and the society. Particularly, sexual victimization should be regarded as more than an event and should rather be conceptualized as multi-faceted phenomenon (Swartout, Swartout, & White, 2011). Thus, it should be analyzed, studied and described using multiple perspectives. One perspective to explore is using a framework called the ecological model (Krugg, Dahlberg, Mercy, Zwi, & Lozano, 2002). This model values many causal and maintaining factors that function on different levels that can operate either interactively or independently (Carlson, 1984). Most of the types of violence have now been studied in accordance to with ecological model, and this model is widely accepted to study the pattern and ways of prevention, this

framework can be used exclusively to judge risk factors in various levels so that we can mitigate problems and risk factors (Banyard, 2011; Carlson, 1984; Little & Kaufman Kantor, 2002)). Banyard, 2011 utilized this framework to prevent sexual violence in communities using bystander intervention on the basis of the ecological model (Banyard, 2011).

Figure 1. 1: The ecological model of health promotion intervention



Source: Heise et al., 1999; Krug et al., 2002; CDC, 2004

The Ecological model is a holistic framework that operates at four different levels: individual, relationship, community and society. Personal weaknesses, problems along with attitudes, beliefs and values learned in one`s family are discussed in the individual level of analysis (Carlson, 1984). For example, use of alcohol and its frequency can be a contributing factor of sexual violence in dating relationships. Relationship level analysis includes parental role, family structure and family roles (Carlson, 1984). Community and societal factors encompasses formal or informal social supports, access to community services and prevailing policies (Little & Kaufman Kantor, 2002). Assessing all these levels to analyze the risk factors related to sexual

violence can give a comprehensive picture to health professionals and school authorities to design and develop more effective health interventions in the educational and community setting.

This study evaluated the most commonly identified factors of sexual violence within the context of an ecological framework. Eight domains were incorporated (gender, sexual orientation, year of schooling, race/ethnicity, sexual risk behavior, sexual assertiveness, drinking behavior and mental health) related to individual level, six domains (parental style index, social support, peer deviance, witnessing domestic violence, hooking up and length of the dating relationship) of relationship level, 3 domains (place of residence, affiliation to student groups (fraternity/sorority) and involvement in community organization) of community level and 1 domain (self-perceived discrimination) of societal level were studied in order to find an association with the sexual victimization.

Purpose:

Numerous research studies were done to determine the prevalence and risk factors of the violence in college students, but little focus was given to the sexual violence that is prevalent among college students in the dating relationship. Basically, previous research has targeted women as the sole victims of sexual violence, so this research looked into the prevalence of sexual violence victimization across genders and people with varied sexual orientation. Given that the research has assessed the risk factors mostly dealing with individual-level risk factors, there remains a gap in dealing this public health issue with a holistic approach. To address this research gap, this

research attempts to identify risk factors of sexual violence victimization among college students in dating relationship across varied gender and sexual orientation. The study uses the ecological model as a theoretical framework in order to find association between multi-leveled predictors and sexual violence victimization.

Research Question:

This study attempts to answer the following questions:

- Are there significant differences in the prevalence of sexual violence based on gender?
- Are there significant differences in the prevalence of sexual violence victimization based on sexual orientation (heterosexual sample vs sexual minority sample)?
- From a social ecological perspective, what are the risk factors of sexual violence victimization among college students in dating relationships at a southwestern university?

Research Hypotheses:

Research hypotheses, alternate hypotheses, and null hypotheses include:

1) Hypothesis: The prevalence of sexual violence victimization in OU students is higher in sexual minority college students than heterosexual college students.

Alternative Hypothesis: The prevalence of sexual violence victimization is significantly higher in heterosexual college students than sexual minority college students.

Null Hypothesis: There is no significant difference in prevalence of sexual violence victimization among sexual minority and heterosexual students.

2) Hypothesis: The prevalence of sexual violence victimization will be higher among female college students in comparison to other college students.

Alternative Hypothesis: The prevalence of sexual violence victimization will be higher among male college students in comparison to other college students.

Null Hypothesis: There will be no significant difference in prevalence of sexual violence victimization among college students in regards to their gender.

As the use of the Ecological model is of an exploratory nature, the relationship between the factors associated with individual, relationship, community and society and prevalence of sexual violence victimization is yet to be explored in regards of dating relationship. It can be predicted that these factors will have independent positive or negative effects on the level of victimization among college students in dating relationships.

Significance of the Study:

Like predictors of sexual violence determined by the research, the prevention strategies have also been applied in only one or two levels (i.e. individual or institutional level). Although numerous prevention programs and awareness strategies are carried out on a regular basis, college students are still at increased risk of experiencing victimization and relationship violence. To date, only a small number of studies have used an extensive multilevel framework like ecological framework to

examine the overall predictors of violence in various age groups. Examining all these previously studied factors together related to each level (i.e. individual, interpersonal, community and society) can help health professional and school authorities to plan, design and implement the prevention and support program in and around educational setting like university.

Delimitations

Delimitations for this study are:

- College undergraduate students participated in this study.
- The age range of participants were between 18 and 24 years old.
- Participants were recruited from the University of Oklahoma, Norman campus.
- Participants must have an active OU email address to fill out an online survey.

Limitations

Limitations of this study are:

- Data were collected at the University of Oklahoma; results and conclusions from this study may not be replicable and generalizable in other colleges or non-college settings.
- An online-based survey and convenient sampling technique were used to collect data. Therefore, limitations inherent with online survey collection are expected to occur such as misunderstanding instructions.

- Study surveys were based on self-report measures. Therefore, there may be a possibility of self-measured bias and subjects providing responses that are not truthful.

Assumptions

Assumptions for this study include:

- Students understood the instructions for filling out the surveys as well as all items in the questionnaire tool.
- All the provided definitions were easily and uniformly understood by the participants.
- “Sexual Victimization Tool” correctly assessed all the aspects of Sexual violence.
- Students answered all the scales honestly and accurately

Operational definition:

- Dating Relationship: “Having a boyfriend or girlfriend, someone you have dated or are currently dating while in college (going out or socializing without being supervised) or someone who you like or love and spend time with, or a relationship that might involve sex for at least a month.”(Dank, Lachman, Zweig, & Yahner, 2014)
- Sexual Minority: “Adolescents who self-identify themselves as gay or lesbian, bisexual or unsure of their sexual identity; report attraction to individuals of the same sex; or engage in sexual contact with individuals of the same sex or with both sexes.” (Tornello, Riskind, & Patterson, 2014)
- Sexual Victimization: “All the violent, coercive and developmentally inappropriate sexual experiences including incest, rape and other forms of sexual abuse such as fondling and sexual exposure; use of physical force, authority, or age differentials to obtain sexual contact; and verbally coerced sexual contact” are considered as sexual victimization (MacGreene & Navarro, 1998)
- Sexual violence: A sexual act that is committed or attempted by another person without given consent by the victim or against someone who is unable to consent or refuse. It includes: forced or alcohol/drug facilitated penetration of a victim; forced or alcohol/drug facilitated incidents in which the victim was made to penetrate a perpetrator or someone else; non-physically

pressured unwanted penetration; intentional sexual touching; or non-contact acts of a sexual nature (Basile & Saltzman, 2002).

- **Mental health:** Mental health is defined as a state of well-being in which each individual realizes his/her potential, can cope with normal stresses of life, can be productive and able to make positive contributions to their community (Organization, 2013b). In this study, the Kessler Psychological Distress Scale K6 instrument is used to assess mental health status.
- **Drinking Behavior:** Drinking Behavior is described as use of alcohol or alcohol containing substance in a manner or to a degree that leads to adverse personal and social consequences (Kandel, 1980).
- **Sexual Assertiveness:** Sexual Assertiveness has been defined as “a commitment to employ appropriate contraception, the ability to initiate with a partner, the ability to refuse unwanted sex, the capacity to communicate sexual desires and satisfaction and/or the ability to discuss sexual history with a sexual partner.” (Loshek & Terrell, 2015; Zamboni, Crawford, & Williams, 2000)
- **Sexual Risk Behavior:** Sexual Risk Behaviors are those behaviors that increase the risk of contracting or transmitting sexually transmitted diseases and/or unwanted pregnancy.
- **Hooking up:** Hooking up is described as “an event in which two people are physically intimate outside of a committed relationship without any expectation of future encounters” (Sutton & Simons, 2015).

- Parenting Style: Parenting style is a combined term used to represent parental responsiveness to children`s special needs and demands and behavioral control in order to integrate their children into the family whole by supervision and disciplinary efforts (Baumrind, 1991).
- Peer Deviance: Peer deviance is defined as the significant influences of peers on involving with theft, vandalism, assault and drug use.
- Witnessing domestic Violence: Witnessing domestic violence includes multiple ways in which a child is exposed to adult`s act carried out with the intention, or perceived intention, of causing physical pain or injury, including directly viewing the violence, hearing it, being used as a tool of the perpetrator, and/or experiencing the aftermath of violence (Edleson, 1999).
- Social Support: Social Support has been defined as “an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient.” (Shumaker & Brownell, 1984)
- Self-perceived discrimination: Self-perceived discrimination is defined as “a behavioral manifestation of a negative attitude, judgement or unfair treatment towards members of a group.” (Banks, Kohn-Wood, & Spencer, 2006)

Chapter 2

Literature Review

The purpose of this study is to determine the risk factors associated with sexual violence among college students in a dating relationship using an ecological model. This study examines how factors related to individual, relationship, and community and society level individually predict the sexual violence among college students at the University of Oklahoma. This chapter is organized into several sections: theoretical background of sexual violence, measuring sexual violence, prevalence of sexual violence, implications of Ecological Model in assessing sexual health and association of various factors of Ecological Model with sexual violence victimization.

Search engines Google scholar, CINAHL with full text, PsycINFO, and PubMed were used to search articles that were relevant to Sexual Violence, its predictors and the ecological model. Key terms used included “Sexual violence”, “Sexual Victimization”, “College student”, “University student” and “Ecological Model”. This literature review was conducted to understand sexual violence, its factors and predictors based on the Ecological Model.

Searches were limited to peer-reviewed and English language articles published after 2000. Articles that were focused on the intervention (for instance bystander intervention) and their effectiveness in preventing college violence were excluded. Articles on Ecological Model in relation to other forms of violence (like domestic violence, intimate partner violence) were taken into consideration for literature review. Duplicate articles were removed after the searches.

Sexual Violence

Sexual violence is an act of committing sexual acts that can be penetrative or non-penetrative including non-contact forms, without a victim's consent, or when a victim is unable to give consent (due to age, a genetic condition, and illness) or refuse (due to threats) (Basile & Saltzman, 2002). According to many studies conducted in this area, most of them have confirmed the perpetrators as someone they are acquainted with, for instance, family members, friends and intimate partners (Luthra & Gidycz, 2006; Purdie, Abbey, & Jacques-Tiura, 2010; Santos-Iglesias & Sierra, 2012; Schuster, Krahe, & Toplu-Demirtas, 2016). Few are the cases where the perpetrators are found to be complete strangers. In a comprehensive study conducted in Chile, almost 40% of perpetrators of the most severe forms of sexual violence were either an acquaintance/friend or a casual date/dating partner (Lehrer et al., 2007). Sexual violence has been used as an umbrella term to represent various behaviors that are related to sexual abuse, sexual assault, sexual harassment and other sexual violations that happen in our workplace, school setting and community (Hill & Kearl, 2011).

Measuring Sexual Violence

Almost all of the research has assessed sexual violence either in terms of sexual violence victimization or sexual violence perpetration. Particularly, in assessing the sexual violence victimization in the sample, some of the research have differentiated into four different subtypes of victimization experiences (sexual contact, attempted rape, sexual coercion and rape) (Santos-Iglesias & Sierra, 2012; Zinzow & Thompson, 2015) while some of the researchers have differentiated based on five levels of severity

(sexual contact, attempted coercion, coercion, attempted rape and rape) (Schuster, Krahe, & Toplu-Demirtaş, 2016)

Much of the research has studied the prevalence of sexual violence victimization in the college population regardless of the gender of the perpetrator and the relationship between the victim-perpetrators while few of the research determined the relationship between the perpetrator and victim by addition of close-ended questions in addition to the sexual victimization measure (Santos-Iglesias & Sierra, 2012).

Prevalence of Sexual Violence

Sexual Violence has been explored in research in the past few decades. The definition has varied and so has the perception regarding the risk factors. Krahe et al. had made an effort to pull up all the documented prevalence of sexual violence victimization among male and female youths in a systematic review. This study has documented the life time prevalence rate of female sexual victimization among 27 European countries to be in the range of 9 to 83% and the rate of male sexual victimization to be in between 2 to 66%, excluding child sexual abuse (Krahe et al., 2014). The research team included studies both within and across countries in terms of the types of sexual victimization considered, the age groups they targeted, the sample size, the broadness of the definition of the sexual violence victimization, differential time frame and the relationship between victim and perpetrator (dating partner or else).

Given that varied research tools were used to determine the prevalence of sexual violence victimization like Revised Sexual Experiences Survey(R-SES), HIV-Risk assessment of Sexual Partnerships, Sexual Experience Survey (SES), Sexual Aggression and Victimization tool, Sexual Coercion Tactics Scale (SCTS), the

prevalence rate is bound to fluctuate between research studies. Also, the difference in prevalence rate occur due to the type of sexual victimization measured (eg: “penetrative” vs “non-penetrative” or “forced” vs any”) as well as the time period considered (eg: “in past 12 months” vs “since the start of the college”). The American College Health Association documented that 9.2% of the respondents (10.6% of females, 6.1% of males, and 17.0% of transgender students) have experienced an abusive relationship (emotional, physical, or sexual victimization) within the previous 12 months.

Prevalence rates vary among male and female college students and for different sexual violence types. In Chile, 51.9% women and 48% men reported to have had faced some type sexual violence since age 14 (Schuster, Krahe, Baeza, & Muñoz-Reyes, 2016)). The prevalence was similar in a study conducted exclusively in a female population. Three in four females and one in two male college students have faced some form of sexual violence since age 16 while almost one in four girls have experienced completed rape (Turchik, 2012; Turchik & Hassija, 2014). Almost 21% of transgender individuals, 8.6% of transgender women and 3.6% of transgender men experienced some form of sexual violence victimization in past 12 months of the conduction of research (Coulter et al., 2017). In this literature review, only two research studies acknowledged the sexual violence victimization of participants by their dating partners. For victimization by a current or former dating partner, the prevalence rate of victimization were 55.7% for women and 62.1% for men (Schuster, Krahe, & Toplu-Demirtaş, 2016). Interestingly, this study was conducted in Turkey and had higher rate of victimization in males rather than in the female population. A recent study reported that current or former partner were the most frequent perpetrator of unwanted sexual

contact while most of the sexual assaults (other than sexual contacts) were perpetrated by strangers (J. C. Campbell et al., 2017).

Ecological Model

The concept of the ecological model was first conceptualized and used by Bronfenbrenner who is also known for doing classic research using the ecological model. He explained a person's ecology as a progressive accommodation between the person and his/her changing environment in the immediate and larger social context (Bronfenbrenner, 1977). He has explicitly described this model as a nested arrangement of four systemic structures: the microsystem, mesosystem, exosystem, and macrosystem. The microsystem is described as any entity that relates a person with his/her environment in an immediate setting, such as home, work, or school. The mesosystem is the interrelation among major settings that promotes development in their life span (e.g., the interactions among family, school, and work). The exosystem is the larger social structures that affect, influence or delimit the events within the immediate settings. An exosystem may determine with whom and how people spend their time (e.g., a social support network or neighborhood). Finally, a macrosystem is the overarching institutional pattern comprising cultural and subcultural systems, such as economic, political, or legal systems.

Later, this model was revised with the addition of "notion of individual history or background" as one of the kind of internal environment by Jay Belsky (Carlson, 1984). Later in 1998, Lori Leise also popularized the globalization theories that was proposed to add a global level to the existing framework of ecological model (Heise, 1998). With few revisions, CDC endorsed this model in the name of Socio-ecological

model which consists of four levels: individual, relationship, community and society level, each of which is nested within the next alike conceptualized by Bronfenbrenner (Krugg et al., 2002)

Implications of the Ecological Model

Understanding significant behaviors and their determinants of health prevalent in different levels is critical for developing effective theory-based and evidence-based prevention programs. Such determinants should be housed within a definitive theoretical framework given that the benefits such framework possess.

A total of 9 studies used some form of Ecological Model to describe a prevalent type of violence including violence among women, domestic violence, inter-personal violence and violence among Men having Sex with Men (MSM). This literature search was conducted to acknowledge the use of Ecological Model and to learn in-depth about its implication in varied target population. Out of 9 studies three are cross-sectional, one is qualitative and remaining four are descriptive studies. Explanatory studies are used to project salient ideas and examples to explain a behavior according to the level of the ecological model while cross-sectional studies are used to identify correlation between the factors of the model (Krahé & Berger, 2017)

The first cross-sectional study was conducted among 3859 Males having Sex with Men (MSM) in Brazil (Sabidó et al., 2015). This study estimated the prevalence of sexual violence experience and its associated risk factors related with individual factors (alcohol use, drug use, self-perceived risk of HIV, disclosure of sexual identity, depression and suicidal tendency), sexual experience (number of sexual partners, age at

first sex, frequency of condom use and number of commercial partners), life experience in community (social pressure, community involvement and access to STI services) and life experience in society (age, years of schooling, income and conjugal situation).

The second cross-sectional study was conducted among U.S Air Force active duty members and their civilian spouses using anonymous online survey to assess the Intimate Partner Violence perpetration along with its potential and promotive factors (Smith Slep, Foran, & Heyman, 2014). This study used individual constructs (physical health, mental health, alcohol use, age and personal coping), family constructs (partner support and relationship satisfaction), work-related constructs (family income, support and financial stress) and community constructs (social support, community support and support from formal agencies) from the concept of Ecological Model. These factors were fed into the model to estimate the prevalence of IPV perpetration in last 12 months.

The third cross-sectional study was conducted among 218 undergraduate students at the University of Naples, Italy to manipulate group norms and assess their impact of willingness to help victims of IPV. This study mentions the use of influence of intrapersonal factors (belief, gender and emotions) along with contextual factors as a part of ecological approach in predicting student's willingness to help the victims (Baldry & Pagliaro, 2014). Further investigation was also conducted in sample of police personnel to assess the influence of intrapersonal and contextual factors about the same behavior.

The qualitative study based on the ecological model is one of the unique studies that have used ecological model. This study used individual level and contextual factors

to predict sexual risk behaviors in a sample of adult rape survivors (R. Campbell, Sefl, & Ahrens, 2004). This interview-based study also used survey tool of stress and depression, physical health and secondary victimization to assess factors related with individual level and contextual factors.

The remaining five studies were purely descriptive in nature that describe the Ecological Model in different scenarios and contexts. Based on the Bronfenbrenner`s ecological model of human development, the ecological framework has been explained by various dimensions: individual level, family level, socio-structural level and socio-cultural level (Carlson, 1984); individual level, family level, community level and societal level(Little & Kaufman Kantor, 2002; J. Tabachnick, 2013); intrapersonal variables (cognitions, attitudes, gender), microsystems (peer and family influences), exosystem and macrosystem (Banyard, 2011) and addition of global ideologies to already established four-level Ecological framework (Fulu & Miedema, 2015).

Individual Level

Individual Level of the Ecological model is composed of both non-modifiable factors like gender, sexual orientation, race and ethnicity while it is also composed of modifiable factors like sexual assertiveness and drinking behavior of an individual.

Gender identity

Gender identity has been regarded as an important predictor of many kinds of violence. Sexual violence among dating couples has been regarded as an international problem since 1980s, but a large portion of available international research still focuses on females as the victims and males as the perpetrators (Abrahams et al., 2014). It has

been documented that males are likely to engage in sexual violence as a means of demonstrating their masculinity and dominating nature against females (Reidy, Smith-Darden, Cortina, Kernsmith, & Kernsmith, 2015). Due to these gender roles and norms, it is documented that males are more likely to perpetrate some level of sexual violence at an early age even before adolescence begins (Reidy et al., 2015).

On the contrary, research conducted in recent decades has confirmed the prevalence of different forms of sexual violence victimization in males too. Higher victimization estimates were found for sexual violence excluding rape for both males and females (23.4% vs 43.9%) (Breiding, 2014)). In a study exclusively conducted in 302 undergraduate male students, almost one in two (51.2%) participants reported experiencing sexual victimization since age 16 regardless of the relationship between victim and perpetrator (Turchik, 2012)

Additionally, Griner et al. confirms the higher odds of sexual victimization among transgender college students -- the least studied population group-- irrespective of the relationship between the victim and perpetrator (Griner et al., 2017). Black transgender individuals were more likely to experience sexual victimization (Coulter et al., 2017). A few other research studies confirm the prevalence of victimization and assumes it is due to the systemic, familial and environmental discrimination prevalent around the concept of “transgender” (Nadal, Skolnik, & Wong, 2012).

Sexual Orientation

While considering homosexual and heterosexual couples, most of the studies conducted in the United States have stated that sexual minority couples are more prone to physical dating violence and sexual violence. Controlling for age in statistical

analysis, bisexual males have almost 4 times the odds of experiencing dating violence than heterosexual males while the bisexual females have 2 times the odds of reporting sexual abuse by a date than heterosexual females (Freedner et al., 2002). Although most of the studies that conducted comparative studies have issues related to small sample size in sexual minority groups, they have demonstrated a marked discrepancy in the lifetime and 12-month prevalence in sexual violence between those groups. In a study conducted in male college students, sexual minority men are more likely to experience all forms of sexual victimization including sexual coercion, unwanted sexual contact and revictimization (Anderson, Wandrey, Klossner, Cahill, & Delahanty, 2017). In addition, bisexual women experienced sexual assaults almost 2 times higher when compared with heterosexual college women (Coulter et al., 2017).

Drinking Behavior

In a study conducted among 704 male and female college students in a midwestern university, sexual violence victimization was positively associated with heavier drinking which was assessed by two items similar to our study (Tyler et al., 2017). In another study conducted in a diverse sample, alcohol use frequency was associated with increased risk of sexual violence victimization in a college setting (Conley et al., 2017). Although problematic drinking has been linked in with increased sexual violence victimization, weekly drinking frequency did not have any significant impact on predicting sexual violence victimization among college women of a midwestern university (Turchik & Hassija, 2014), while the weekly frequency did matter in the male cohort of the same university (Turchik, 2012). Interestingly, there was no significant association between substance use-- that included drinking—and any

form of violence among exclusively sexual minority cohort (Reuter, Newcomb, Whitton, & Mustanski, 2017). Overall about two-thirds of the sexual victimization among college males and females involve alcohol use either by victim or perpetrator or both (Schuster, Krahe, Baeza, et al., 2016; Schuster, Krahe, & Toplu-Demirtaş, 2016).

Mental health

In a study conducted to find the prevalence of broad sexual assault in college students using 27-itemed Symptom Checklist, the variables associated with mental health were significantly associated with victimization (Conley et al., 2017). Depression symptoms were associated with increased risk of sexual victimization among college women. The extreme condition of mental illness-having suicidal thoughts during last 6 months- was found to be independently associated with sexual violence exposure among Men having Sex with Men (MSM) (Sabidó et al., 2015). Strikingly, at the cross-sectional level, there was no association found between any form of violence and mental health among exclusively sexual minority youths (Reuter et al., 2017).

Race or ethnicity

Although there are mixed findings about association of race/ethnicity with experiencing sexual victimization in college students, significant association between specific race with increased risk of sexual violence has been documented. In a study exploring the intersection of gender identity, sexual identity and race/ethnicity, Black transgender people were almost 9 times more likely to have experienced sexual assault compared to White transgender people. Irrespective of the sexual orientation, this study also affirms higher odds of sexual violence victimization of Blacks and people of other race/ethnicity when compared to Whites (Coulter et al., 2017; Reuter et al., 2017).

Asian students were more likely to experience any sexual victimization in comparison to White students while Asian women were documented to be less likely to experience penetrative assaults compared to non-Hispanic White women (Mellins et al., 2017).

Risky Sexual Activities

Coercive sexual intercourse between couples in the dating relationship is associated with risky sexual behaviors. Early initiation of sex, non-use of condoms and having multiple sexual partners are highly associated with forced sexual intercourse for both men and women (D'Abreu & Krahé, 2016). Sexual risk taking behavior is also found to be one of the strong predictors of sexual victimization among male victims (Turchik, 2012).

In a study conducted by Gidycz et al., in which almost 90% of the sexual victimization is perpetrated either by acquaintance or date, women with a history of moderate to severe sexual victimization were around 4 times more likely to have engaged in early initiation of sexual intercourse (at or before age 15) while the victims of rape were 4.54 times more likely to have multiple sexual partners than college students without a history of sexual victimization (Gidycz et al., 2008).

Sexual Assertiveness

Only few of the research studies have found the impact of sexual assertiveness of the participants in predicting the sexual violence in any relationship. Given that sexual victimization, particularly in a dating relationship, is perpetrated by someone close to the victim, the relational context of assertiveness in sexual situations should be taken into consideration to understand victimization risk (Kelley, Orchowski, & Gidycz,

2016). Lower sexual assertiveness has been found to be an independent predictor of sexual violence among Spanish college women (Santos-Iglesias & Sierra, 2012). This domain serve as the only salient mechanism of the sexual revictimization among dating population (Kelley et al., 2016) . This statement is also validated among female American students as one study found women felt obliged to fulfil their partner`s sexual needs rather than to protect themselves (Vanzile-Tamsen, Testa, & Livingston, 2005).

Year of schooling:

The year of schooling has been treated as a demographic factor in most of the research, but only one study has evaluated the connection between the school year the participant is in and the sexual victimization. This study explains “freshmen year” as a “red zone” , a time period at the beginning of the student`s time at college in which college women are at a heightened risk of sexual assault for sexual assault (Flack Jr et al., 2008) . A higher percentage of freshmen (55.61% freshmen, 19.11% sophomores and 25.27% juniors and higher) are sexually victimized in college events, parties and dates than any other school year category (Cranney, 2015).

Relationship Level

To date, fewer studies have studied factors at the relationship level related to sexual violence victimization including hooking up, characteristics of family, family background, social support and peer influence.

Hooking up

The culture of hooking up has been recently treated as a risk factor of various social problems, including binge drinking, sexual assault and risky sexual behavior

(Sutton & Simons, 2015). Only a few of the studies have acknowledged the hook up culture prevalent in college students. Hooking up has been documented to be a mediating variable on predicting sexual violence perpetration in males and victimization in females (Sutton & Simons, 2015) while it is found to be directly associated with sexual violence victimization in both male and female college students (Tyler et al., 2017). There is a dire need to associate this behavior in regards to sexual violence victimization as it has now been regarded as inseparable part of college environment considering that 6 out of 10 college students hook up with either strangers, acquaintances, friends or previous romantic partners (Flack Jr et al., 2016).

Witnessing Family Violence

Witnessing and experiencing family violence can be one of the early signs of later dating violence. Subsequently, this may also manifest in intimate partner violence in adult life. Studies have found a varied relation between the exposure of family violence and physical and sexual violence in the adult dating relationships. Adolescents experiencing family violence were more likely to develop the attitude of accepting dating violence and inability in expressing themselves that can ultimately lead to an increased risk for perpetrating physical dating violence (Foshee et al., 2011).

Witnessing family violence along with other negative childhood experiences is associated with high frequency of sexual victimization among female college students evaluated across 5 time points (Swartout et al., 2011). On the contrary, a systematic review that looked into effect of witnessing parental or family violence on predicting sexual violence documented the inconclusive relation between these domains due to

low quality of studies and large variety of outcomes in the literature (van Rosmalen-Nooijens, Lahaije, Lo Fo Wong, Prins, & Lagro-Janssen, 2017)

Parenting Style

In the literature, parental style has been used to evaluate family background and family relations. Family relations and influence of family is a broad subject to study and is inexplicable with few research tools. In the literature, family relation has been operationalized by the means of constructs related to inter-parental hostility, parental warmth, nature of parenting, harsh punishment and autonomy granting (Flack Jr et al., 2016; Logan, Crosby, & Hamburger, 2011). Experiencing parental physical punishment has been documented to have been associated with moderate to high risk of sexual victimization among adolescents (Swartout et al., 2011). Parental control over child and parental involvement did not make significantly difference in predicting broad sexual assault that included sexual harassment, attempted rape and rape among male and female college students (Conley et al., 2017).

Peer Deviance

Even though the ecological model seeks to outline the importance of peer influence and of an individual's perceptions or peer's behavior to an understanding of any health behavior, to date, only few studies have explored this behavior in relation to predicting sexual violence. As like any other anti-social behaviors, there is high likelihood of perpetrating sexual violence by college students who reported having friends who are engaged in sexual violence. Peer deviance—the involvement in anti-social activity due to influence of friends -- has been associated with increased risk of

sexual assault in college men and women, however, no significant association on predicting sexual violence in the final model which considered only significant variables (Conley et al., 2017). Further studies need to be done to assess its impact in victimization among diverse population.

Length of the dating relationship

Most of the studies based on college students were focused on broad sexual assault perpetrated by diverse group of people including strangers, acquaintances and ex/current dating partners (Santos-Iglesias & Sierra, 2012; Schuster, Krahe, Baeza, et al., 2016; Schuster, Krahe, & Toplu-Demirtas, 2016). Although some research has acknowledged the relationship of dating relationships, only two studies have confirmed the relationship between characteristics related to dating relationship and sexual violence victimization. Kaukinen's work on dating violence in casual and exclusive relationships among adolescents has discussed how changes in nature of intimate relationship (duration, level of intimacy, level of commitment) can proportionate with frequency and acceptance of violence (Kaukinen, 2014). Length of the relationship was a significant predictor for perpetration of violence for males (Luthra & Gidycz, 2006).

Social Support

Very few of the research studies have incorporated the concept of social support in addition to multiple individual level. Negative social support level appears to impact the recovery process of survivors of sexual violence (Mason, Ullman, Long, Long, & Starzynski, 2009) and the chances of revictimization (Ullman, Starzynski, Long,

Mason, & Long, 2008). Greater perceived social support is found to be a protective factor for both male and female college students (Conley et al., 2017).

Community Level

Inclusion of community level variables is a new concept in the research of sexual violence. Given that this issue has recently been accepted as a public health issue, the research are yet to explore more on the community level. Few of the studies have included domains like inclusion in social organization, place of residence, access to the facilities as some of the reasonable aspects of the community.

Gender plays a vital role in deciding the effect of place of residence in predicting sexual violence victimization. In case of female college students, living off campus with a romantic partner is directly associated with victimization while no such association was found among male participants. This study also documents significant indirect effect of protection among students living in residence dorm and at home with parents when compared with those living in a fraternity house while considering personal and demographic variables in the model (Tyler et al., 2017).

Belonging to a Non-Governmental Organization (NGO) for LGBT, discrimination due to sexual orientation and participating in HIV/STI talks in the local community has been shown to have significant impact on predicting sexual violence victimization among Brazilian Men having Sex with Men (Sabidó et al., 2015).

Alternatively, participation in community groups and the perception of their importance in the community have been included in the community level in the study conducted among high school youths (Edwards & Neal, 2017).

Society Level

Little is known about the potential factors related to society that could act as the risk factors for sexual violence among the college population. Socially and culturally justified norms and social stigma are included under this heading. Due to the blurry demarcation between the definition of community and society level in the Ecological Model, the constructs and tools are not concretely developed to assess all the components of this level. Nevertheless, St Pierre documented socially accepted sexual-orientation related discrimination as one of the major predictor of victimization among gay, lesbian and bisexual adults (St Pierre & Senn, 2010).

Interventions against violence in dating violence

In order to tackle this problem, most of the interventions are being conducted in the educational setting. Reviews of sexual violence prevention programs demonstrate that these programs are generally delivered in a single session and rarely rigorously evaluated (Clinton-Sherrod et al., 2003). Another review based on sexual assault prevention programs in colleges and university stresses the importance of multi-sessions intervention and using broad prevention approaches like community level- bystander intervention in order to change attitude and knowledge on sexual violence (Vladutiu, Martin, & Macy, 2011).

Even though prevention programs are designed for community and school settings, one study conducted in gender norms related to teen dating violence suggests that these programs need to include efforts to reduce distress about proving the masculinity in primary prevention strategies, to break gender stereotypes (Reidy et al.,

2015). Preventive programs should focus on motivating peers to be helpful bystanders and counteracting peer actions that lead to dating and sexual violence among adolescents (Baker & Duncan, 1985). Social workers, educators, and staffs should address gender and racial inequalities that adolescents feel in dating relationships. Furthermore, as there is a well-established relationship between substance abuse and perpetrating dating violence, incorporating substance use prevention content in sexual violence prevention programs can make them holistic and comprehensive (Lehrer et al., 2007). Adolescents rarely seek help so the program implementers also need to make sure that the services are gender friendly, culturally attuned and emphasize on confidentiality working at family, peer and school levels to foster healthy and age-friendly relationships (Rueda, Williams, & Nagoshi, 2015).

Summary:

Sexual violence can have detrimental effects on adolescents when perpetrated by someone they trust—their dating partners. Substance abuse, sexual orientation, gender, risky sexual behaviors, presence of family violence, or discrimination can cumulatively heighten the chances of sexual violence victimization (Lehrer et al., 2007). In reference to increasing magnitude of sexual violence among college students, many interventions and prevention programs are conducted that are conducive to healthy relationships among college men and women. Research has suggested making prevention programs more comprehensive and gender friendly. (Vladutiu et al., 2011).

Chapter 3

Methodology

Introduction

The primary purpose of this study was to determine the prevalence and risk factors of sexual violence among college students in dating relationships at one southwestern university. This chapter includes a brief description of the study sample, recruitment process and sampling techniques, instrumentation and measurement protocols, research design, data collection and management procedures, and data analysis. Data collection was conducted in Spring 2018.

Sample:

According to OU, Norman Campus Enrollment Summary Report, a total of 20,074 undergraduate students are studying at OU. Out of these, 16.56% are freshmen, 21.14% are sophomores, 22.96% are juniors and 40% are seniors. Among them, 67.90% identify themselves as White followed by 9.35% American Indian and 6.97% Asian.

A mass email was sent to undergraduate students including consent form and link to the survey to which 451 students replied. The projected sample was based on previous research which has documented the prevalence of dating violence ranges from 6.8-22% among universities and college students in the United States. To rationalize the sample size, G*Power analysis for F-test with multiple regression, Special (R^2 increase); and A priori: Computed required sample size- given a power, and effect size were used to validate this number. Parameters used for estimating sample size were effect size $f^2=0.02$, a err prob=0.05, Power (1- β err prob) =0.80 , and number of

predictors=10. Computing G-Power with these parameters provided a sample size of 395.

Inclusion Criteria:

Undergraduate students, both male, and female between ages 18 and 24 years old were eligible to participate in the study. Students enrolled in the fall semester of 2017 at the University of Oklahoma, Norman campus were approached with the mass emails. Participation was not restricted by gender, race, or type of classification in school. Students must have been at least 18 years old and in a dating relationship for at least 1 month while in college. Besides failing to meet these inclusion criteria, there were no exclusion criteria for participating in this study. Diverse group of college students were enrolled in this study including international and exchange students studying in OU.

Instrumentation:

Sexual Victimization Measure

In order to explore sexual victimization, 14 items measure of Sexual Violence Experiences was used. This survey tool was devised and used to assess the anger perception towards unwanted sexual advances of women in dating relationships (Jouriles, Simpson Rowe, McDonald, & Kleinsasser, 2014). This survey tool had items drawn from Sexual Experiences Survey (Koss, Gidycz, & Wisniewski, 1987) and (Wolfe et al., 2001). These tool includes supplementary items to obtain a broad assessment of possible acts that are likely to occur among college student samples.

This measure covered varied kind of sexual assaults and violence including unwanted sexual contact (sexual touch or kiss), sexual coercion (threats and arguments

if not given sex) and actual or attempted rape. Participants indicated how many times each act has ever happened while in college on a 5-point scale ranging from 0 (zero) to four times or more. Participants who indicated that any of the 14 items has ever occurred were classified as a victim of sexual violence. Cronbach`s alpha has been reported to be 0.84 for 14 items of victimization (Jouriles et al., 2014).

For the analysis, the items were grouped into 6 major categories according to conventional severity-ranking scheme namely - no history of sexual assault, unwanted sexual contact, attempted rape by verbal coercion, completed rape by verbal coercion, attempted rape by intoxication or physical force and completed rape by intoxication or physical force (Davis et al., 2014). These groups are ranked from 0 to 5 in order to match the severity.

1. No history: The victims having no victimization of any kind were enrolled into no history of sexual assault group.
2. Unwanted sexual contact: Item 1 (A partner touched me sexually when I did not want him/her to), Item 4 (A partner kissed me when I did not want him/her to), Item 13 (I have given into sex play (fondling, kissing or petting, but not intercourse) when I did not want to because I was overwhelmed by a partner`s continuous arguments and pressure) were lumped into unwanted sexual contact.
3. Attempted rape by verbal coercion: Item 3 (A partner threatened me in an attempt to have sex with me), Item 5 (A partner threatened to leave or end the relationship if I would not have sex with him/her), Item 7 (A partner warned me that I could get hurt if I resisted him/her), Item 8 (A partner told me that it was too late to stop a sexual encounter), Item 9 (A partner told me that he/she could

find someone else to give him/her sex if I would not), Item 10 (A partner called me angry name and pushed me away because I would not give him/her sex) and Item 12 (A partner told me that my refusal to have sex was changing the way he/she felt about me) were lumped into attempted rape by verbal coercion.

4. Completed rape by verbal coercion: Item 14 (I have given in to sexual intercourse when I did not want to because I was overwhelmed by a partner's continual arguments and pressure) denoted completed rape by verbal coercion.
5. Attempted rape by Intoxication or physical force: Item 6 (A partner got me drunk or gave me drugs in order to have sex with me) and Item 11 (A partner has gotten drunk or high and forced me to have sex with him/her) were assessed as attempted rape by intoxication or physical force.
6. Completed rape by Intoxication or physical force: Item 2 (A partner forced me to have sex when I did not want to) represented completed rape by intoxication or physical force.

The severity rank of each outcome were multiplied by frequency of the victimization and then summed for an overall score.

Drinking Behavior:

For the assessment of drinking behavior, two questions (Testa, Livingston, & Leonard, 2003) were asked to evaluate the frequency of alcohol consumption in past 12 months and frequency of consumption of five or more (if you are a male)/ four or more (if you are a female) drinks in one setting in past 12 months. The frequency were measured from 0 (never) to 5 (5 or more days per week). The correlation between two items was 0.85. The score of two items were averaged and a higher score indicated

more frequent heavy drinking. A separate question was asked to identify whether or not alcohol was involved in any of the sexual violence incidence.

Kessler Psychological Distress Scale K6

The Kessler Psychological Distress Scale K6 was developed to assess the incidence of serious mental illness (SMI) as defined by US public law. This scale has 6 additional items related with individual's feelings during the past 30 days measured in 5 point Likert scale ranging from 6 to 30. The optimal cut point for Kessler Psychological Distress Scale K6 is 6-18 which is considered high risk for SMI vs. 19+ which are considered for low risk for SMI. This scale has been included in national health tracking surveys, CDC Behavioral Risk Factors, and SAMHSA National Household Survey on Drug Use and Health. The Kessler Psychological Distress Scale K6 was scored by the unweighted summative scoring approach. Also the Kessler Psychological Distress Scale K6 is the condensed version and was found more robust than K10 scale (Furukawa, Kessler, Slade, & Andrews, 2003). Similarly, in another study Kessler Psychological Distress Scale K6 was used for detecting postnatal depression. This study reflected Cronbach's alpha coefficient of 0.78 for reliability. The Kessler Psychological Distress Scale K6 had a significantly higher validity score [mean 5.3 (SD=3.8), ($P=0.0008$)] (Baggaley et al., 2007)..

For the purpose of this study, 6 itemed K6 tool was used which asked responders the frequency of feeling nervous, hopeless, restless/fidgety, sad/depressed, that everything was an effort and no good or worthless during the past 30 days. The sum of these items were calculated where higher score would mean psychological distress.

Medical Outcome Study Social Support Survey

Using 6-itemed Medical Outcome Study (MOS) module, the perceived social support was evaluated (Holden, Lee, Hockey, Ware, & Dobson, 2014). This study utilized the sum score of 6 items made on a Likert type scale of 1 to 5 (“none of the time” to “all of the time”). These 6 items incorporated statements related with tangible support, emotional- informational support, affectionate support and positive social interaction support. This study tool were successfully used to assess perceived social support among the varied population group, including chronically ill people, care givers of the patients, community based householder and university students. The sum score was calculated with a continuous range between 6 to 30 points, with a higher score representing more support.

Parenting Style Inventory

For the assessment of family relations, 18 itemed Parenting Styles Inventory was used. It consisted of 2 subscales: parental involvement (9 items) and autonomy granting (9 items). This items were asked in reference to the parents or guardian they lived with or with whom they have the most say over the participants’ daily life (Steinberg, Lamborn, Dornbusch, & Darling, 1992). Each item were assessed using Likert-type scale ranging from 1 (strongly agree) to 4 (strongly disagree).The sum scores were computed for each subscale. Higher score for both the subscale would mean greater involvement and autonomy granting.

Risky Sexual Behavior Scale

Risky sexual behavior scale was used to explain participants` sexual risk-taking behavior. A total of four items regarding ever giving money for sex, ever taking money for sex, ever having sex without a condom and ever stripping in front of webcam will

present the information about these specific sexual behaviors. The frequency were reported with three categories (1- Never, 2- sometimes and 3- a lot). Later, for the analysis, the results were dichotomized into 0 (no experience) and 1 (experienced). Cronbach`s alpha of these items collectively was 0.70 to 0.85 across four time points in the study conducted among 407 mid-adolescents (Baams, Overbeek, Dubas, & Van Aken, 2014).

Model Risk Measure

The model risk measure consisted of 5 items measuring peer deviance while in college (Vazsonyi et al., 2010). Participants were asked about their involvement in vandalism, drugs, minor theft, major theft and assault, with their friends, in the score of 1 (none), 2 (some) and 3 (a lot). The average score of peer deviance were calculated. Higher score would mean more risk. This tool has been used to explain deviance and problem behavior theory in large diverse population sample from 8 distinct developmental contexts including Asian, European, North American and Eurasian/Muslim culture.

Sexual Assertiveness

Assessment of Sexual Assertiveness were done by 18-item Sexual Assertiveness Questionnaire. It consisted of 8 items assessing communication about sexual initiation and satisfaction, 5 items related to the refusal of unwanted sex and remaining 5 items related to sexual history communication subscale. All the items in this instrument were rated in a seven-point Likert type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Six of the items were reverse coded. This tool was developed to evaluate the sexual assertiveness among female college students. The Cronbach`s alphas for the

subscales has been confirmed as 0.79 for the satisfaction subscale, 0.78 for refusal subscale and 0.81 for history subscale (Loshek & Terrell, 2015). Some designated items were reverse coded such that higher scores reflect greater difficulty with assertiveness.

Demographic profile

In addition to the study assessment instruments, there was a separate section containing questions to collect demographic information. Demographic information for the study included age, sex, ethnicity, gender identity, sexual orientation, country of birth, and year of schooling.

Apart from the demographic indicators, few questions were asked regarding the dating relationship including the length of relationship and type of relationship (live in or others). In order to explore the relationship between sexual violence and past violence, a question about the witnessing family violence ever in life was also be included.

Research Design

This study was a cross-sectional, non-experimental, correlational, descriptive quantitative research. This study determined the prevalence of sexual violence among college students in dating relationships as well as ecological based risk factors of sexual violence among college students of varying sexual orientation and gender. . This design was found to be appropriate as the study was planned to determine hypothesized relationships between independent variables (gender, characteristics of relationship, socio-demographic variables) and the dependent variable (sexual violence).

Past studies that have assessed the relationship between sexual violence and people with varied sexual orientation have utilized a similar research design. This design was helpful to compare the findings with the findings of previous studies (Edwards et al., 2015; Lehrer et al., 2007). As the topic of sexual violence is more personal and also associated with stigma in some culture, the prevalence would be best analyzed using self-report questionnaire sent through emails.

Data Collection Procedures:

Approval for data collection was obtained from the Institutional Review Board (IRB) of the University of Oklahoma, Norman Campus, before conducting this study. Students were asked to respond to the Sexual Victimization Measure, demographic questionnaire and domains related to individual, relationship, community and societal level. The comprehensive online survey was created using Qualtrics.com. The web link for the study survey was sent once to all Norman Campus OU students through mass emails. We collaborated with Gender and Equality Center, OU to reach out specifically to LGBTQ students associated to OU. Students were informed that no personal data would be collected to ensure confidentiality. Participants were requested to agree to an information consent form before they could proceed to the survey. The assent form included the study purpose, study design, measurement procedures, length of participation, expected risks and benefits, voluntary nature of the study, confidentiality of collected information, and contact information for the researcher. A brief information about approachable resources on campus that provides counselling and guidance on dealing abuse were also incorporated in the consent form. Students were informed of their rights to obtain study results once data analysis is completed. After

obtaining consent, the Qualtrics directed students to complete the quantitative survey which may require approximately 15 minutes. The survey responses were recorded in SPSS and excel formats after the responses were submitted.

Data Management and Analysis

Upon the completion of data collection, various descriptive statistics including mean, frequency, and standard deviation for all independent demographic variables were computed using the Statistical Package for Social Sciences (SPSS) V22 .0. All collected data were sorted from ascending to descending order to check for outliers for the independent variables. Descriptive analysis and bivariate analysis were carried out to find the difference in prevalence of sexual violence among male and female students and among heterosexual and LGBT college students.

Binary logistic regression analysis was conducted to explore the risk factors of ever experiencing sexual violence in dating relationships on the basis of socio-demographic and domains related with individual, interpersonal, community and society level. Three negative binomial regression were run to find the association between domains related to the individual, relationship, community and societal level and log counts of the sexual violence incidences. Furthermore, a separate multiple linear regression assessed the association among independent variables and victimization score based on severity and its frequency. As this study was cross-sectional, no causal inferences were stated. For all the statistical analyses, the level of significance were set at 0.05.

Data were stored in the password-protected lab`s computer of the principal investigator. The data were not stored in any online drive or cloud to protect the identity

of data. No personal information were taken from the participants and a separate Qualtric survey was used to collect their email address who wanted to participate in the raffle for gift card which restricted any linkage between the data collected and the email address of the participants.

Chapter 4

Results

Introduction

The primary purpose of the study was to identify the prevalence and risk factors of sexual violence among college students in dating relationships using an ecological model. For this, we enrolled 18-24 years old undergraduate students at the University of Oklahoma, Norman campus. The risk factors were associated with the individual, relationship, community and societal level of the ecological model. Few of the previous studies have applied this theory while predicting the sexual violence victimization and perpetration in minority population (Freedner et al., 2002; Logie, Alaggia, & Rwigema, 2014; Sabidó et al., 2015) and adolescents (Banyard, Cross, & Modecki, 2006). Other studies have explored the relationship between selected domains with sexual victimization in general populations, minority populations (Griner et al., 2017; Logie et al., 2014) and college cohorts (Conley et al., 2017; Santos-Iglesias & Sierra, 2012).

This study pooled 18 domains under 4 areas of the Ecological model. The domains included in the study has been stated in table 4.1.

Table 4. 1: List of level and domains included in each level

Level	Variables
Individual Level	Gender
	Sexual Orientation
	Year of Schooling
	Race/ethnicity
	Drinking Behavior
	Mental Health
	Risky sexual behavior
	Sexual Assertiveness (Communication, Refusal skills, sexual history)
Relationship	Hooking up during college
	Parenting style (Involvement and autonomy granting)
	Ever witnessed family violence
	Peer deviance
	Length of the dating relationship
	Social support
Community	Place of residence
	Affiliation to NGO
	Affiliation to student groups (fraternity and sorority groups)
Societal	Perceived discrimination

For this study, validated tools and scales were used for all constructs other than for demographics. Validated and reliable tools that were used in previous studies conducted among high school students and college students have been used in this study.

These scales were checked for their reliability using Cronbach's alpha. Chi-square tests were run to assess differences in prevalence among heterosexual and LGBTQ college populations. Any significant difference in prevalence of sexual victimization across gender was also looked at by using a Chi-square test. Due to lack of a sufficient number of participants representing "Other" gender, this test was run only between male and female college students. In order to identify the risk factors related to the sexual victimization among college students in dating relationships while in college, binary logistic regression was used. All the variables under individual, relationship, community and society level constructs were analyzed using binary logistic regression in order to find its associations with attempted sexual contacts, attempted rape incidents, and complete rape incidents. A separate linear regression was used to predict the risk factors associated with increasing severity and frequency of the sexual violence using the variables that were found to create the significant difference in binary logistic regression.

Procedure

A convenience sample of 451 undergraduate students from OU, Norman campus participated in this study by providing responses to an online survey circulated through mass email. The mass email was sent out once by the PI. The email was also sent out to the LGBTQ community on campus through the pages and email address of Gender and Equality Center, OU. The survey contained an IRB approved consent form, procedures, time, risk and benefits of participation, compensation, and contact information for any questions and confidentiality issues.

The survey included demographic information, Sexual Experience Survey (SES), parenting style index, sexual assertiveness questionnaire, Kessler Psychological Distress scale K6, MOS social-support survey, risky sexual behavior survey, and peer deviance scale.

Missing Values

Out of 451 undergraduate students who gave consent to participate in the study, 425 participants passed the screening questions (consent and being in a dating relationship while in college) and were eligible for the study. Missing data were identified by running a frequency test on each variable. A total of 401 students were selected by omitting the participants with more than 20% missing values (3 variables out of 14 total variables) related to the dependent variable—sexual victimization. These selected were again analyzed for missing values for overall variables of the survey. By screening out the cases with more than 20% missing values in the overall survey, 370 participants were used for the further analysis.

The mean replacement method was used to replace missing values in few of the items under sexual assertiveness survey and parenting style index. The missing values in the dependent variable were left as it is, thus 11 cases do not have a value for dependent variable throughout the analysis.

Reverse coding

Reverse coding was used on a few of the items under sexual assertiveness scale and parenting style index. Item 1, 2, 5 10, 11 and 12 were worded negatively with the options ranging from 1(Strongly disagree) to 7 (Strongly agree) of the sexual

assertiveness scale, thus these items were reverse coded so that higher score would mean having better sexual assertiveness. All the even items except item 12 were reverse-coded to even out the negatively written statements under parenting style index. These items ranged from 1 (Strongly disagree) to 4 (Strongly agree) as their options. No outliers were detected on the instrument.

Reliability and Validity

All the scales used in this study are reliable and valid tools used in many of the previous studies involving young adolescents and college youths. To verify the reliability of the scales among 18-24 years old college youths, Cronbach's alpha was used to establish internal consistency reliability for each construct. Scales with an alpha of ≥ 0.7 were deemed adequate. When the Cronbach's alpha was less than 0.7, the items which were redundant or weak were eliminated as they could impact the overall alpha score of the scale. Almost all the scales were used exactly as they were used in the previous studies if $\alpha \geq 0.7$ while an item has been excluded from peer deviance scale and only one of the items has been used instead of risky sexual behavior scale because its alpha value was only 0.29. This decision was made as no item/s when deleted could boost the alpha value of the overall scale.

All the scales with $\alpha \geq 0.7$ with the exception of Model Risk Measure scale were analyzed for factor analysis. Confirmatory factor analysis using the Principal Component method with varimax rotation was used; Eigenvalues' greater than 1.0 was used to confirm the presence of factor solutions. This method was used to confirm the factor loadings of the items as per the previous studies that conducted a confirmatory

factor analysis to validate the scales. All of the items from pre-validated scales were used in the analysis except peer deviance scale and risky sexual behavior scale. The results from confirmatory factor analysis for the scale variables are presented in the tables below.

Table 4. 2: Summary of the Reliability statistics of scales.

Variable	Cronbach's alpha
Sexual experience scale	0.92
Individual Level constructs	
Drinking behavior	0.81
K-6 Mental Health scale	0.88
Risky sexual behavior scale	0.25**
Sexual assertiveness survey	
Communication about sexual initiation and satisfaction subscale	0.82
Refusal of unwanted sex subscale	0.81
Sexual history communication subscale	0.87
Relationship level constructs	
Parenting style index	
Parental involvement subscale	0.85
Psychological autonomy-granting subscale	0.88
Model Risk Measure (Peer deviance)	0.49*
MOS Social Support scale	0.88

*Improved the reliability using item deletion

** Did not use the scale in further analyses considering α is very small compared to 0.7 cut-off value.

Dependent Variable: Sexual Experience Scale (SES)

Using confirmatory factor analysis, 14 items of SES loaded into 3 factors with eigenvalues of 7.459, 1.635 and 1.064. Nine out of 14 items loaded onto one factor with factor loadings ranging from 0.415 to 0.809.

Table 4. 3: Summary of factor analysis for Sexual Experience scale

Items	Eigenvalues	Factor loadings		
		1	2	3
Have these ever happened..	7.459/1.635/1.064			
1. A partner touched me sexually...		0.455	0.795	0.039
2. A partner forced me to have sex...		0.809	0.424	0.080
3. .A partner threatened me in ...		0.791	0.055	0.461
4. A partner kissed me...		0.046	0.837	0.398
5. A partner threatened to leave ...		0.255	0.229	0.644
6. A partner got me drunk...		0.438	0.368	0.271
7. A partner warned me that I could...		0.651	0.066	0.417
8. A partner told me that it was too...		0.583	0.402	0.322
9. A partner told me that he/she could...		0.201	0.165	0.758
10. A partner called me an angry...		0.415	0.329	0.574
11. A partner has gotten drunk or high...		0.455	0.795	0.039
12. A partner told me that my refusal ...		0.809	0.424	0.080
13. I have given into sex play...		0.791	0.055	0.461
14. I have given in to sexual ...		0.046	0.837	0.398

Three out of 14 items loaded onto the second factor with factor loadings ranging from 0.795 to 0.837. Similarly, two items loaded onto the third factor with values of 0.644 and 0.758 factor loadings. All the values exceeded the cut off value of 0.40, thus were retained for further analysis.

Individual Level Constructs:

Both of the items related to drinking behavior scale loaded onto one factor with Eigenvalues 1.715 and factor loading of 0.926.

Table 4. 4: Summary of factor analysis for Drinking Behavior scale

Items	Eigenvalues	Factor Loadings
	1.715	
In the past 30 days, how many days did you use...		.926
During the past 30 days, how many times have you had...		.926

For the construct of Sexual Assertiveness Scale (SAS), all relevant items loaded into a 4-factor solution with Eigen values of 5.106, 2.731, 2.405 and 1.288. Five items loaded onto factor 1, 6 items loaded onto factor 2, 5 items loaded into factor 3 and two items loaded into factor 4. Factor loadings for each item ranged from 0.564 to 0.862. Item 3 to 8 fall under communication about sexual initiation and satisfaction subscale. Item 9 to 13 fall under refusal of unwanted sex sub-scale. Similarly, item 14 to 18 fall under sexual history communication subscale.

Table 4. 5: Summary of factor analysis for Sexual Assertiveness scale

Items	Eigenvalues	Factor loadings			
		1	2	3	4
	5.106/2.731/				
	2.405/1.288				
1. I feel uncomfortable telling ...	.042	.077	.049	.772
2. I feel uncomfortable talking ...	.086	.142	.117	.798
3. I am open with my partner about...	.163	.681	.185	.375	
4. I let my partner know if ...	.135	.816	.062	.094
5. I feel shy when it comes...	.115	.564	.096	.425	
6. I approach my partner for sex...	.033	.862	-.039	.002	
7. I begin sex with my partner...	.017	.764	-.121	-.127	
8. It is easy for me to ...	.212	.660	.696	-.051
9. I refuse to have sex...	.110	.016	.696	-.051	
10. I find myself having sex....	.080	-.023	.816	.142	
11. I give in and kiss if my partner...	.035	.071	.664	.366	
12. I have sex if my partner...	.073	-.064	.840	.106	
13. It is easy for me to say...	.126	.148	.716	-.055	
14. I would ask my partner about ...	.799	.067	.144	.015
15. I would ask my partner if he or she...	.787	.083	.172	.063	
16. I ask my partner if he or she has...	.803	.095	.081	-.014	
17. I ask my partners about ...	.781	.091	-.005	.127
18. I ask my partners whether they ...	.843	.114	.065	.087

Confirmatory factor analysis was computed for Kessler Psychological Distress Scale K6 is presented below. All 6 items loaded onto a 1-factor solution. Individual item factor loading ranged from 0.651 to 0.878.

Table 4. 6: Summary of factor analysis for mental health status as assessed by K6

Items	Eigenvalues	Factor loading
During the past 30 days, about how often did you feel	3.77	
1. Nervous?		0.705
2. Hopeless?		0.878
3. Restless or fidgety?		0.651
4. So depressed that nothing could cheer you up?		0.831
5. That everything was an effort?		0.817
6. Worthless?		0.851

Relationship level constructs

The results from confirmatory factor analysis of six items of MOS Social Support scale are presented in the table below. All items associated with this scale yielded a 1-factor solution with Eigenvalue of 3.820. Individual item factor loadings ranged from 0.739 to 0.834.

Table 4. 7: Summary of factor analysis for MOS Social Support scale

Items	Eigenvalues	Factor Loadings
How often were these kinds of support available to you?	3.820	
1. Someone to help you if you are confined...		0.785
2. Some to take you to doctor if ...		0.739
3. Someone to share your most private...		0.827
4. Someone to turn to for suggestions...		0.834
5. Someone to do something enjoyable...		0.801
6. Some to love and make you feel...		0.798

For the Parenting Style construct, all the relevant items were considered which reported a 3-factors solution with Eigenvalues 6.725, 2.439 and 1.045. Each item factor loadings ranging from 0.497 to 0.755.

Table 4. 8: Summary of factor analysis for Parenting Style Index

Items	Eigenvalues	Factor loadings		
	6.725/2.439/1.045	1	2	3
1. I can count on my parents to...		.187	.608	.478
2. My parents say that you should...		.748	-.020	.038
3. My parents keep pushing me to...		.005	.274	.739
4. My parents say that you should...		.681	-.168	.261
5. My parents keep pushing me to...		.192	.323	.642
6. When I get a poor grade in...		.669	.443	-.189
7. My parents help me with...		.037	.572	.166
8. My parents tell me that their...		.730	.360	.069
9. When my parents want me to do...		.363	.532	.246
10. Whenever I argue with my ...		.714	.135	-.003
11. When I get a poor grade in ...		-.008	.214	.724
12. My parents let me make my own...		.429	.497	.199
13. My parents know who my...		.158	.567	.322
14. My parents act cold and...		.699	.340	.110
15. My parents spend time just...		.360	.686	.316
16. When I get a poor grade in...		.635	.488	-.226
17. My family does things for fun...		.080	.755	.211
18. My parents won't let me do things...		.635	.215	.242

Confirmatory factor analysis was computed for the last construct of the relationship level construct – Peer Deviance. With all items included, the Eigenvalues were reported 1.841 with a 2 factors-solution. Item 2 was eliminated to obtain a 1-factor solution. Revised factor analysis reported an Eigenvalue of 1.706 with 1-factor loading solution. The final factor loadings of 4 items ranged from 0.599 to 0.733.

Table 4. 9: Summary of factor analysis for Model Risk Measure (Peer Deviance)

Items	Eigenvalues	Factor loadings	
		1	2
How often did you participate in	1.841/1.002		
1. Vandalism...?		.127	.828
2. Drugs...?		.078	.698
3. Minor theft...?		.734	.250
4. Major theft ...?		.854	-.092
5. Assault ...?		.447	.334

Table 4. 10: Summary of factor analysis for Model Risk Measures (Peer Deviance) after revising items

Items	Eigenvalues	Factor Loading
How often did you participate in	1.706	
1. Vandalism...?		.599
2. Minor theft...?		.733
3. Major theft ...?		.630
4. Assault ...?		.643

Summary of Reliability & Validity

All the scales used in the research were evaluated using internal consistency and confirmatory factor analysis using Cronbach's alpha and principal component analysis respectively. All the scales were found to be reliable and valid except the risky sexual behavior scale. Due to problematic consistency, this scale was not analyzed using confirmatory factor analysis. On the other hand, the deficiency in the Model Risk Measure (Peer Deviance) was corrected by eliminating an item which had low factor loading when compared to 0.40.

Assumptions Evaluation

In this study, three types of regression were used to analyze the risk factors of experiencing sexual violence or not and experiencing different types of sexual violence. A chi-square test was used to determine any significant differences between two groups of the study based on the gender and sexual orientation. The assumptions of each statistical test are mentioned below.

Given that the chi-square test should not have sample size less than 5 in the expected value cell, the third category of gender- Non-binary- has been excluded from the analysis since the total sample size of “Non-binary” population was 8. Thus, the chi square test was used to determine the significant difference between genders was only conducted between male and female college students.

Before conducting Binary logistic regression to find the association of the sexual violence among college students in dating relationships with its risk factors, recommended sample size and multicollinearity must be considered. In this study, all 19 constructs were treated as the independent variables together in the model. For binary logistic regression, Peng et al., (2002) recommend subjects variables in the ratio of 10:1 (with a minimum sample size of 50-100). On this basis, a total of 240 ($50 + 10 \times 19$) participants were needed. This study met this assumption with 361 participants.

For the Poisson Regression, the test of Kolmogorov-Smirnov test conducted to see if there was any difference between the mean and variance of the dependent variable (count variable). The p-value of Kolmogorov-Smirnov test was found to be significant ($p < 0.05$) and thus, the dependent variable does not follow the Poisson distribution and

confirms the issue of over dispersion. Thus, for the count outcome (number of incidence of unwanted sexual contact, attempted rape and completed rape), negative binomial regressions were used.

For the multivariate linear regression, the number of participants needed, normality, linearity, homoscedasticity of residuals, outliers and multicollinearity must be considered. The common rule of thumb as suggested by Green (1991) for the linear regression is $50 + 80 * m$ where m is the number of independent variable in the model. In this scenario, the minimum requirement of cases is 210 participants. As we have 351 participants in total, the assumption related to sample size is met.

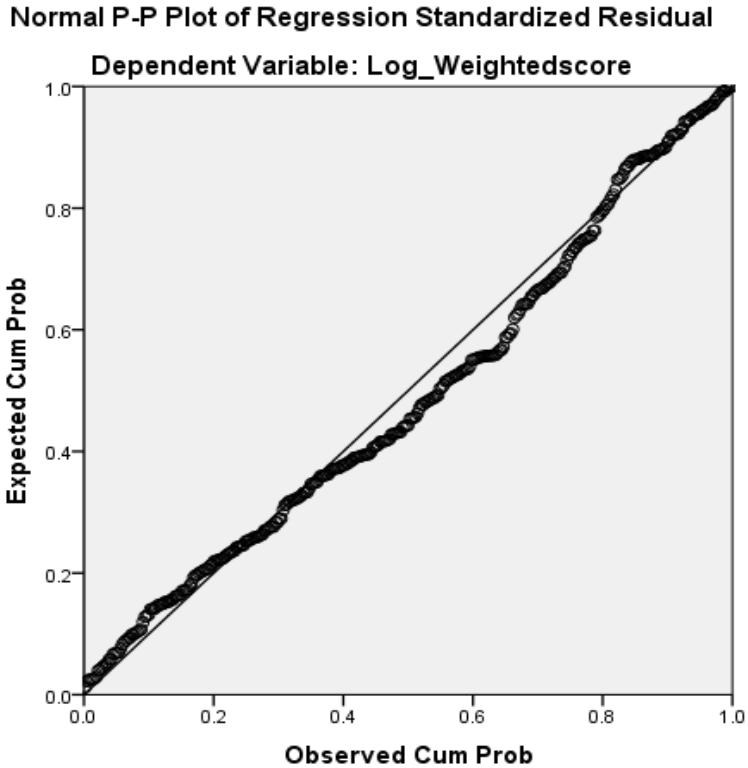
Normality of the dependent variable (weighted score of sexual violence victimization) was assessed using the measures of skewness and kurtosis. Values between +3 to -3 were considered normal. The only dependent variable of this study did not appear to be normally distributed (Table 4.10). These values were log-transformed in order to establish normality. After the transformation, both skewness and kurtosis measures adjusted to accepted standards of normality.

Table 4. 11: Skewness and Kurtosis before and after log transform (N=351)

	Skewness	Kurtosis
Before	3.829	17.437
After	0.993	-0.558

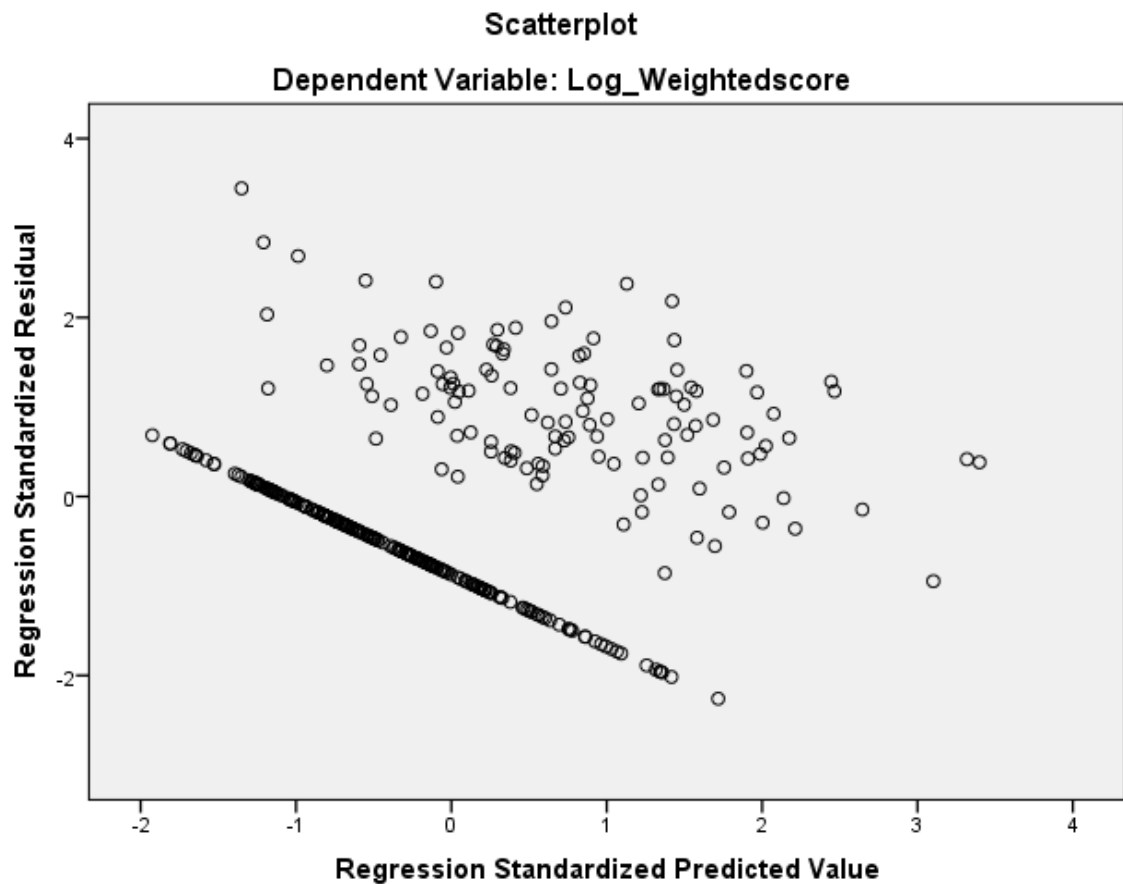
Linearity was checked between the log-transformed dependent variable and the independent variables collectively while conducting the regression analysis. The scatterplot obtained confirmed this assumption of the multiple linear regression.

Figure 4. 1 Linearity of log score of dependent variable against standardized residual



Homoscedasticity of residuals was inspected using a scatter plot which uses regression standardized predicted value and residuals to determine whether the variances of each set of residuals are equal. Homoscedasticity was found to be maintained as the values spread out between +3 and -3 with the exception of few cases.

Figure 4. 2: Homoscedasticity of Residuals



Outliers:

An analysis of means, standard deviation and frequencies were used to detect outliers for all the scale variables (drinking behavior, mental health score, three subscales of sexual assertiveness, peer deviance score, two subscales of parenting style index and social support scale). In order to analyze multivariate outliers, Mahalanobis distance was calculated for each case. Based on the Mahalanobis distance, the

probability score was computed. Considering 0.001 as a cutoff point, 9 cases were removed for the data sets, thus 361 cases were used in further analysis.

Multicollinearity

In order to identify redundant measures and constructs which are closely related, a test of multicollinearity was conducted. Multicollinearity was assessed using Variance Inflation Factor (VIF). Multicollinearity is considered to be present if the VIF does not exceed 10. Multicollinearity was assessed using the dependent variable (ever experienced any types of sexual violence or not) against all the scale independent variables in the model.

Table 4. 12: Variation Inflation Factor (VIF) of the constructs used.

	Variable/ Scales	VIF
1.	Mental Health scale	1.414
2.	Social Support	1.567
3.	Drinking Behavior scale	1.052
4.	Sexual Assertiveness	
	Communication about sexual initiation and satisfaction	1.236
	Refusal of unwanted sex subscale	1.325
	Sexual history communication subscale	1.147
5	Parenting Style Index	
	Parental Involvement	1.613
	Psychological autonomy	1.497
6	Peer deviance scale	1.051

All of the constructs under individual and relationship level had VIFs significantly lower than 10. On the other hand, all the constructs under community and society level are categorical variables and were not assessed using VIF.

Demographic Information

Gender, sexual orientation, race/ethnicity, year in college and country of birth were asked in the demographic portion of the survey.

Table 4. 13: Demographics information of the participants (N=361)

Variable	Frequency	Percentage
Gender		
Male	92	25.5%
Female	261	72.3%
Non-binary	8	2.2%
Sexual Orientation		
Heterosexual	281	77.8%
LGBTQ	80	22.2%
Race		
White	280	77.6%
African American	7	1.9%
Native Indian	8	2.2%
Asian	35	9.7%
Hispanic	19	5.3%
Other	11	3.0%
Missing	1	0.3%

Year in College		
Freshmen	82	22.7%
Sophomores	91	25.2%
Juniors	88	24.4%
Seniors	73	20.2%
5 years+ Senior	27	7.5%
Country of birth		
USA	328	90.9%
Other	30	8.3%
Missing	3	0.8%

Table 4.13 summarizes the categorical demographics by frequency and percentages of the participants. The majority of the sample were female (72.3%) and heterosexual (77.8%). Participants were majorly white (77.6%) and their country of birth being the USA (90.9%). Eighty two participants (22.7%) were freshmen, 91 (25.2%) were sophomore, 88 (24.4%) were junior, 73 (20.2%) were senior while 27 (7.5%) of the participants were studying in their 5th year or more in school.

Table 4. 14: Categorical data related to Individual, Relationship, Community and Society constructs of Ecological Theory (N=361)

Variable	Frequency	Percentage
Individual		
Ever had sex without condoms		
Yes	239	66.2%
No	122	33.8%
Relationship		
Hooking up during college		
Never	217	60.1%
1-2 times	43	11.9%
3-5 times	24	6.6%
5-10 times	12	3.3%
More than 10 times	64	17.7%
Missing	1	0.3%
Ever witnessed family violence		
Yes	66	18.3%
No	294	81.4%
Missing	1	0.3%
Length of dating (present/recent)		
Less than 6 months	100	27.7%
6 months- 1 year	73	20.2%
1-3 years	128	35.5%
3-5 years	48	13.3%
More than 5 years	7	1.9%

Missing	5	1.9%
Community		
Place of residence		
Residence hall/student housing	97	26.9%
Fraternity/ Sorority house	16	4.4%
Off campus along or with a friend/ non-romantic partner	170	47.1%
Off campus with a romantic partner/spouse	47	13.0%
At home with parents	31	8.6%
Affiliation to NGO/voluntary groups		
Yes	91	25.2%
No	270	74.8%
Involved in student groups		
Yes	108	29.1%
No	253	70.1%
Society Level		
Perceived discrimination		
Yes	105	29.1%
No	256	70.9%

Almost two thirds of the participants have had sex without condoms in their life. Four out of 10 students have at least hooked up once during college while 18.3% have witnessed family violence in their life. Majority of the students (47.1%) live off-campus along with a friend/non-romantic partner. Almost 25% of the participants were affiliated

to the Non-Governmental Organization (NGO) while 29.1% of them are involved either in a fraternity or sorority.

Statistical Analysis:

1. Chi-Square Test:

To determine the difference in the prevalence of different types of sexual violence in dating relationships among Heterosexual and LGBTQ community people and between college males and females, chi-square test of association was used.

While in the college, 29.7% of the women reported having experienced at least one type of sexual violence compared with 5.2% of the men ($X^2=11.512$, $p<0.01$). Women are more likely to report attempted rape and completed rape compared with men in dating relationships (25.8% of women vs 5.2% of men, $X^2 = 6.904$, $p<0.01$; 20.3% of women vs 4.3% of men, $X^2=4.602$, $p<0.05$.)

Table 4. 15: Prevalence of SV and its types by sex

Incident	Men		Women		X ²	Total	
	n	%	n	%		n	%
Atleast one type of SV (N=343)	18	5.2	102	29.7	11.51**	120	35.0
Unwanted sexual contacts (N=353)	15	4.2	99	28.0	15.63**	114	32.31
Attempted rape (N=345)	18	5.2	89	25.8	6.90**	107	31.0
Completed rape (N=350)	15	4.3	71	20.3	4.60*	86	24.6

** $p<0.01$

* $p<0.05$

Similarly, the chi-square test was used to identify any significant differences in the prevalence of different kind of sexual violence among college students with different sexual orientation. There is a significant difference between heterosexual and LGBTQ college population (24.8% in heterosexual vs 10.03% in LGBTQ, $X^2 = 5.439$, $p < 0.05$.) No significant differences were found in the prevalence of attempted rape and completed rape both by verbal coercion and physical force.

Table 4. 16 : Prevalence of SV and its types by sexual orientation

Incident	Heterosexual		LGBTQ		X^2	Total	
	n	%	n	%		n	%
At least one type of SV (N=351)	87	24.8	36	10.03	5.43*	123	35.04
Unwanted sexual contact (N=351)	87	24.8	36	10.03	5.43*	123	35.04
Attempted rape (N=353)	79	22.4%	29	8.2	2.04	108	30.59
Completed rape (N=358)	64	17.9%	25	7.0%	2.25	89	24.9

* $p < 0.05$

2. Logistic Regression

Binary Logistic Regression was used to find the association of the risk factors with sexual violence in dating relationships including unwanted sexual contacts, attempted rapes and completed rapes. If a participant answered affirmatively to any of the sexual violence items, they were treated as a case of experiencing sexual violence in dating relationship while in college. All the constructs under individual, relationship,

community and society level were inputted in the binary logistic regression. The results of the logistic regression model can be seen in Table 4.16.

The direct entry method was used to model the construct of the ecological model to predict the sexual violence. Omnibus tests of model coefficients, Hosmer and Lemeshow Test for overall model fit, Wald Chi-square test, and classification table along with 95% CI were extracted while conducting this regression.

An Omnibus test which compared a model with all predictor variable against a constant-only model was found significant ($X^2(38) = 154.22, p < 0.001$). The Hosmer and Lemeshow test confirmed the goodness of fit for the model ($X^2(df=8) = 9.399, p = 0.310$). As p value is non-significant when compared with 0.05, we accepted the goodness of fit. The model correctly predicted 85.3% of cases not experiencing sexual violence and 62.5% of cases experiencing sexual violence. The overall success rate was 77.4%. The Cox & Snell R-square and Nagelkerke R-square suggest that the predictors explain between 36.0% and 49.7% of the variance.

Individual Level: The regression model showed that being in senior year ($B = -1.228, Wald X^2(1) = 4.0179, p < 0.05$), communication skills about sexual initiation and satisfaction ($B = -0.058, Wald X^2(1) = 9.485, p < 0.01$) and refusal skills related to unwanted sex ($B = -0.002, Wald X^2(1) = 33.651, p < 0.01$) under individual level were significant negative predictors of sexual violence victimization among college students in dating relationship.

Relationship Level: The regression model showed that hooking up (1-2 times) with $B = 1.427, Wald X^2(1) = 8.020, p < 0.01$ was significant in predicting the sexual violence

among college students in a dating relationship. The increasing frequency of hooking up during college showed no association with ever experiencing sexual violence in college.

Community Level: No variables of community level were found significant in predicting the sexual violence victimization.

Societal Level: Perceived discrimination by the participants were found to have a significant impact on predicting sexual violence ($B=0.981$, Wald $X^2=12.771$, $p<0.01$).

Table 4. 17: Parameter Estimates from Binary Logistic Regression for experiencing sexual violence victimization among college students in dating relationships (n=351)

Variables	B	S.E	Wald	Sig	Exp (B) (95% CI)
Individual					
Sexual Orientation					
Heterosexual (vs LGBTQ)	0.002	0.422	.000	0.997	1.002 (0.438-2.291)
Gender					
Female (vs Male)	-1.50	1.055	2.023	.155	.223 (.028-1.763)
Non-binary (vs Male)	.095	.988	.009	.923	1.100 (.159-7.624)
Year of Schooling					
Sophomore (Vs Freshmen)	-1.109	0.755	2.158	.142	.330 (.075-1.449)
Junior (Vs Freshmen)	-.527	.628	.706	.401	.590 (.172-2.020)
Senior (Vs Freshmen)	-1.228	.608	4.079	0.043*	.293 (.089-.964)
5+ Senior (Vs Freshmen)	-.851	.621	1.878	.171	.427 (.127-1.442)
Race					
Black (vs White)	-.756	.856	.781	.377	.469 (.088-2.513)
American Indian (vs White)	-1.338	1.486	.810	.368	.262 (.014-4.832)
Asian (vs White)	.597	1.261	.224	.636	1.818 (.153-21.537)
Hispanic (vs White)	-1.148	.981	1.371	.242	.317 (.046-2.168)
Other (vs White)	.019	1.091	.000	.986	1.019 (.120-8.643)
Drinking Behavior					
	.042	.052	.661	.416	1.043 (.942-1.155)
Mental Health					
	-.030	.036	.695	.404	.970 (.904-1.402)
Risky Sexual Behavior					
Yes (vs No)	-.401	.390	1.054	.305	.670 (.312-1.440)
Sexual Assertiveness					
Communication about sexual initiation and satisfaction	-.058	.019	9.485	.002*	.944 (.910-.979)
Refusal of unwanted sex	-.170	.029	33.651	.001*	.844 (.797-.894)
Sexual history communication	-.002	.022	.005	.944	.998 (.955-1.043)
Relationship					
Hooking up					
1-2 times (vs Never)	1.427	.504	8.020	.005*	4.167 (1.55-11.189)

3-5 times (vs Never)	.527	.646	.666	.414	1.694 (.478-6.011)
5-10 times (vs Never)	.825	.881	.876	.349	2.281 (.406-12.832)
10 or more times (vs Never)	.798	.494	2.611	.106	2.221 (.844-5.848)
Witness Family Violence					
Yes (vs No)	-.042	.434	.009	.923	.959 (.410-2.244)
Parenting style					
Parental involvement	-.042	.042	.985	.321	.959 (.883-1.042)
Psychological autonomy granting	.033	.032	1.059	.303	1.034 (.970-1.101)
Peer deviance					
	.107	.475	.051	.821	1.113 (.438-2.827)
Length of the relationship					
6 months to 1 year (vs less than 6 months)	-.090	.461	.038	.846	.914 (.371-2.255)
1- 3 years (vs less than 6 months)	-.492	.435	1.279	.258	.612 (.261-1.434)
3-5 years (vs less than 6 months)	.313	.548	.326	.568	1.368 (.467-4.008)
More than 5 years (vs less than 6 months)	-1.116	1.325	.709	.400	.328 (.024-4.400)
Social Support					
Community					
Place of residence					
Fraternity/Sorority house (vs Residence Hall)	.489	.917	.284	.594	1.630 (.270-9.843)
Off campus alone or with non-romantic partner (vs Residence Hall)	.578	.520	1.238	.266	1.783 (.644-4.937)
Off campus with a romantic partner(vs Residence Hall)	.113	.706	.026	.873	1.120 (.281-4.467)
At home with parents (vs Residence Hall)	.467	.657	.505	.477	1.595 (.440-5.782)
Affiliation to Fraternity/Sorority					
Yes (vs No)	-.116	.381	.093	.761	.890 (.422-1.881)
Affiliation to NGO					
Yes (vs No)	.130	.354	.134	.715	1.138 (.568-2.280)

Societal					
Perceived discrimination					
Yes (vs No)	.981	.361	7.403	.007*	2.667
					(1.316-5.407)

2. Negative Binomial Regression

Negative Binomial Regression models were used to predict the incidences of sexual violence victimization among college students in dating relationships. The dependent variable is the count outcomes of the number of times the participants have experienced unwanted sexual contact, attempted rape and completed rape. The results of the negative binomial regression model can be seen in the tables below.

Model goodness of fit information, Omnibus test, and Wald's chi-square test determined the predictors of the individual, relationship, community and societal level associated with the counts of sexual violence victimization.

Predicting count variables of unwanted sexual contacts.

The regression model showed that frequency of hooking up, gender, communication about sexual initiation and satisfaction, refusal of unwanted sex and parental involvement were significant in predicting the incidences of unwanted sexual contacts among college students

Individual Level: Both female population ($B=1.146$, Wald $X^2(1) = 16.071$, $p < 0.05$) and college youths identifying as “non-binary” gender ($B=1.589$, Wald $X^2(1) = 5.896$, $p < 0.01$) are more likely to have experienced unwanted sexual contacts. Communication skills related with sexual initiation and satisfaction ($B = -0.039$, Wald $X^2(1) = 12.050$,

$p < 0.01$) and refusal skills of unwanted sex ($B = -0.109$, Wald $X^2(1) = 41.522$, $p < 0.01$) were negatively and significantly associated with the log counts of the number of unwanted sexual contacts among college students in dating relationships.

Relationship Level: The frequency of hooking up has a significant positive impact on the outcome variable at $p < 0.01$. Parental involvement ($B = -0.061$, Wald $X^2(1) = 5.462$, $p < 0.05$) have the negative impact on the incidences of unwanted sexual contacts among students in dating relationships.

Community and Societal Level: None of the variables related to community and societal level were found to be significantly associated with the log counts of the number of unwanted sexual contacts.

An Omnibus test which compared this model with all predictors associated with ecological model against a constant-only model was statistically significant ($X^2 = 242.365$, $p < 0.01$). Default value of dispersion parameter was inputted in the model with value 1. The Akaike's Information Criterion (AIC) value and Bayesian Information Criterion (BIC) value were found to be 845.244 and 995.814 respectively.

Table 4. 18: Parameter Estimates from Negative Binomial Regression for experiencing unwanted sexual contact by college students in dating relationships (n=351)

Variables	B	S.E	Wald	Sig	Exp (B) (95% CI)
Individual					
Sexual Orientation					
Heterosexual (vs LGBTQ)	-.114	.259	.195	.659	.892 (.536-1.483)
Gender					
Female (vs Male)	1.146	.286	16.071	.000*	3.147(1.797-5.511)
Non-binary (vs Male)	1.589	.654	5.896	.015*	4.900 (1.359-17.675)
Year of Schooling					
Sophomore (Vs Freshmen)	.494	.379	1.689	.194	1.638 (.778-3.449)
Junior (Vs Freshmen)	-.247	.422	.342	.559	.781 (.342-1.787)
Senior (Vs Freshmen)	.376	.414	.826	.363	1.457 (.647-3.281)
5+ Senior (Vs Freshmen)	.458	.504	.824	.364	1.581 (.588-4.248)
Race					
Black (vs White)	-1.122	.857	1.714	.190	.326 (.061-1.747)
American Indian (vs White)	.304	.537	.321	.571	1.356 (.473-3.889)
Asian (vs White)	-.145	.352	.170	.680	.865 (.433-1.725)
Hispanic (vs White)	-.007	.483	.000	.988	.993 (.385-2.562)
Other (vs White)	.368	.506	.528	.467	1.445 (.536-3.895)
Drinking Behavior	.007	.032	.048	.826	1.007 (.945-1.074)
Mental Health	-.028	.023	1.433	.231	.972 (.928-1.018)
Risky Sexual Behavior					
Yes (vs No)	-.235	.271	.753	.386	.790(.465-1.345)
Sexual Assertiveness					

Communication about sexual initiation and satisfaction	-.039	.011	12.050	.001*	.962 (.941-.983)
Refusal of unwanted sex	-.109	.017	41.522	.000*	.896 (.867-.927)
Sexual history communication	-.007	.013	.296	.587	.993 (.966-1.020)
Relationship					
Hooking up					
1-2 times (vs Never)	.983	.316	9.665	.002*	2.673 (1.438-4.969)
3-5 times (vs Never)	-.356	.403	.779	.377	.701 (.318-1.544)
5-10 times (vs Never)	1.306	.470	7.714	.005*	3.690(1.469-9.271)
10 or more times (vs Never)	.835	.282	8.746	.003*	2.306 (1.325-4.011)
Witness Family Violence					
Yes (vs No)	-.053	.267	.039	.843	.948 (.562-1.600)
Parenting style					
Parental involvement	-.061	.026	5.462	.019*	.941 (.894-.990)
Psychological autonomy granting	.016	.020	.600	.438	1.016 (.976-1.058)
Peer deviance	.283	.266	1.127	.288	1.327 (.787-2.239)
Length of the relationship					
6 months to 1 year (vs less than 6 months)	-.325	.291	1.243	.265	.722 (.408-1.279)
1- 3 years (vs less than 6 months)	-.184	.263	.487	.485	.832 (.497-1.394)
3-5 years (vs less than 6 months)	.025	.353	.005	.943	1.025 (.513-2.050)
More than 5 years (vs less than 6 months)	-.656	.894	.537	.463	.519 (.090-2.997)

Social Support	-0.035	.025	1.843	.175	.966 (.918-1.016)
Community					
Place of residence					
Fraternity/Sorority house (vs Residence Hall)	.053	.613	.008	.931	1.055 (.317-3.507)
Off campus alone or with non-romantic partner (vs Residence Hall)	.477	.345	1.905	.168	1.611 (.818-3.172)
Off campus with a romantic partner(vs Residence Hall)	.094	.462	.041	.840	1.098 (.443-2.719)
At home with parents (vs Residence Hall)	.510	.447	1.299	.254	1.664 (.693-3.998)
Affiliation to Fraternity/Sorority					
Yes (vs No)	-.028	.239	.014	.905	.972 (.608-1.554)
Affiliation to NGO					
Yes (vs No)	-.164	.224	.537	.464	.848 (.546-1.317)
Societal					
Perceived discrimination					
Yes (vs No)	-.304	.217	1.950	.163	.738 (.482-1.130)

Predicting count variables of attempted rapes among college students.

The regression model showed that frequency of hooking up, gender, communication about sexual initiation and satisfaction, refusal of unwanted sex, length of relationship, parental involvement and peer deviance were significant in predicting the incidences of

attempted rapes by verbal coercion and physical force among college students in dating relationships.

Individual Level: Female students ($B=0.951$, Wald $X^2(1)=12.929$, $p<0.05$) were more likely to have experienced attempted rapes from their significant other in dating relationships. Communication skills related with sexual initiation and satisfaction ($B=-0.031$, Wald $X^2(1)=7.850$, $p<0.01$) and refusal skills of unwanted sex ($B=-0.129$, Wald $X^2(1)=57.676$, $p<0.01$) were negatively and significantly associated with the log count of the number of the attempted rapes among college students in dating relationship.

Relationship Level: Frequent hook-ups during college was a significant positive risk factor related with number of attempted rapes. Length of relationship ($B=-0.725$, Wald $X^2(1)=7.231$, $p<0.01$) and parental involvement ($B=-0.063$, Wald $X^2(1)=5.637$, $p<0.05$) had negative impact on the incidences of attempted rapes among students in dating relationships. On the other hand, peer influence ($B=0.566$, Wald $X^2(1)=3.963$, $p<0.05$) acted as a significant positive risk factor of additional count of attempted rapes.

Community and Societal level: No variables related to both community and societal level were found to have a significant impact in predicting log counts of the number of attempted rapes.

An Omnibus test which compared this model with all predictors associated with the ecological model against a constant-only model was statistically significant ($X^2(38)=377.964$, $p<0.01$). Default value of dispersion parameter was inputted in the model with value 1. The Akaike's Information Criterion (AIC) value and Bayesian Information Criterion (BIC) value were found to be 887.347 and 1037.470 respectively.

Table 4. 19: Parameter Estimates from Negative Binomial Regression for experiencing attempted rapes by verbal coercion and physical force by college students in dating relationships (n=347)

Variables	B	S.E	Wald	Sig	Exp (B) (95% CI)
Individual					
Sexual Orientation					
Heterosexual (vs LGBTQ)	.184	.280	.431	.511	1.202 (.694-2.082)
Gender					
Female (vs Male)	.951	.264	12.929	.000*	2.589 (1.542-4.349)
Non-binary (vs Male)	1.219	.699	3.041	.081	3.385 (.860-13.327)
Year of Schooling					
Sophomore (Vs Freshmen)	.330	.399	.685	.408	1.392 (.636-3.043)
Junior (Vs Freshmen)	-.303	.431	.494	.482	.738 (.317-1.720)
Senior (Vs Freshmen)	.423	.420	1.011	.315	1.527 (.669-3.484)
5+ Senior (Vs Freshmen)	.359	.517	.483	.487	1.432 (.520-3.947)
Race					
Black (vs White)	-.946	.866	1.191	.275	.388 (.071-2.123)
American Indian (vs White)	-.260	.563	.213	.645	.771 (.255-2.328)
Asian (vs White)	-.713	.379	3.531	.060	.490(.233-1.031)
Hispanic (vs White)	-.409	.525	.606	.436	.664 (.237-1.861)
Other (vs White)	-.972	.683	2.021	.155	.378 (.099-1.445)
Drinking Behavior	-.006	.032	.037	.848	.994 (.933-1.059)
Mental Health	-.022	.023	.833	.361	.979 (.934-1.025)
Risky Sexual Behavior					
Yes (vs No)	-.202	.273	.544	.461	.817 (.478-1.397)
Sexual Assertiveness					

Communication about sexual initiation and satisfaction	-.031	.011	7.850	.005*	.970 (.949-.991)
Refusal of unwanted sex	-.129	.017	57.676	.000*	.879 (.850-.909)
Sexual history communication	-.019	.013	2.094	.148	.981 (.955-1.007)
Relationship					
Hooking up					
1-2 times (vs Never)	1.472	.303	1.472	.000*	4.359 (2.406-7.899)
3-5 times (vs Never)	-.192	.402	-.192	.633	.825 (.375-1.815)
5-10 times (vs Never)	1.951	.477	1.951	.000*	7.034 (2.761-17.920)
10 or more times (vs Never)	1.081	.291	1.081	.000*	2.946(1.664-5.217)
Witness Family Violence					
Yes (vs No)	-.070	.277	.063	.802	.933 (.541-1.607)
Parenting style					
Parental involvement	-.063	.026	5.637	.018*	.939 (.891-.989)
Psychological autonomy granting	-.002	.020	.008	.929	.998 (.958-1.040)
Peer deviance	.566	.284	3.963	.047*	1.761 (1.009-3.075)
Length of the relationship					
6 months to 1 year (vs less than 6 months)	-.214	.284	.566	.452	.807 (.462-1.410)
1- 3 years (vs less than 6 months)	-.725	.269	7.231	.007*	.485 (.286-.822)
3-5 years (vs less than 6 months)	-.170	.351	.235	.628	.844 (.424-1.679)
More than 5 years (vs less than 6 months)	-.737	.912	.652	.419	.478 (.080-2.864)
Social Support	-.005	.025	-.033	.856	.995 (.947-1.046)
Community					

Place of residence					
Fraternity/Sorority house (vs Residence Hall)	-.309	.629	.241	.624	.734 (.214-2.523)
Off campus alone or with non-romantic partner (vs Residence Hall)	.380	.365	1.080	.299	1.462(.714-2.995)
Off campus with a romantic partner(vs Residence Hall)	.765	.459	2.773	.096	2.148 (.873-5.283)
At home with parents (vs Residence Hall)	.198	.490	.163	.686	1.219 (.466-3.188)
Affiliation to Fraternity/Sorority					
Yes (vs No)	.039	.249	.025	.875	1.040 (.638-1.695)
Affiliation to NGO					
Yes (vs No)	-.206	.231	.794	.373	.814 (.518-1.280)
Societal					
Perceived discrimination					
Yes (vs No)	.080	.224	.126	.723	1.083 (.697-1.683)

Predicting count variables of completed rapes among college students.

The regression model showed that frequency of hooking up, gender, communication about sexual initiation and satisfaction, refusal of unwanted sex, length of relationship and perceived discrimination were significant in predicting the incidences of completed rapes by verbal coercion and physical force among college students in dating relationships.

Individual Level: Both female population ($B=0.839$, Wald $X^2(1)=6.211$, $p<0.05$) and population identifying as “Other” ($B=1.595$, Wald $X^2(1)=4.2751$, $p<0.05$) were more likely to have had experienced completed rapes in dating relationships. Communication skills related with sexual initiation and satisfaction ($B=-0.042$, Wald $X^2(1)=9.948$, $p<0.01$) and refusal skills of unwanted sex ($B=-.121$, Wald $X^2(1)=38.118$, $p<0.01$) decreased the incidence rate of completed rapes among college students in the dating relationship.

Relationship Level: Frequent hooking ups was a significant risk factor related to number of completed rapes at $p<0.01$. Length of relationship ($B=-1.031$, Wald $X^2(1)=4.481$, $p<0.05$) had a negative impact on the incidences of completed rapes among students in dating relationships.

Community and Societal Level: No variables of community level were found to have a significant association with the incidence of completed rape. Nevertheless, having faced discrimination based on sexual orientation, race, and nationality ($B=-.777$, Wald $X^2(1)=9.328$, $p<0.01$) had a negative impact on the incidences of completed rapes among students in dating relationships.

An Omnibus test which compared this model with all predictors associated with ecological model against a constant-only model was statistically significant ($X^2(38)=225.321$, $p<0.01$). Default value of dispersion parameter was inputted in the model with value 1. The Akaike’s Information Criterion (AIC) value and Bayesian Information Criterion (BIC) value were found to be 625.275 and 775.846 respectively.

Table 4. 20: Parameter Estimates from Negative Binomial Regression for experiencing completed rapes by verbal coercion and physical force by college students in dating relationships (n=351)

Variables	B	S.E	Wald	Sig	Exp (B)
Individual					
Sexual Orientation					
Heterosexual(vs LGBTQ)	-.070	.318	.048	.826	.932 (.499-1.742)
Gender					
Female (vs Male)	1.595	.771	4.275	.039*	4.929 (1.087-22.363)
Non-binary(vs Male)	.839	.336	6.211	.013*	2.314 (1.196-4.478)
Year of Schooling					
Sophomore (Vs Freshmen)	.834	.440	3.583	.058	2.302 (.971-5.457)
Junior (Vs Freshmen)	-.162	.508	.102	.749	.850 (.314-2.304)
Senior (Vs Freshmen)	.532	.500	1.131	.288	1.702 (.639-4.536)
5+ Senior (Vs Freshmen)	.581	.597	.944	.331	1.787 (.554-5.765)
Race					
Black (vs White)	-1.840	1.043	3.108	.078	.159 (.021-1.228)
American Indian (vs White)	.995	.601	2.742	.098	2.705 (.833-8.785)
Asian (vs White)	.144	.414	.121	.728	1.155 (.513-2.601)
Hispanic (vs White)	-.173	.553	.098	.755	.841 (.284-2.490)
Other (vs White)	.892	.610	2.134	.144	2.440 (.737-8.078)
Drinking Behavior	.054	.037	2.005	.157	1.055 (.980-1.136)
Mental Health	.002	.026	.008	.930	1.002 (.952-1.055)
Risky Sexual Behavior					
Yes (vs No)	.093	.330	.079	.779	1.097 (.574-2.099)
Sexual Assertiveness					

Communication about sexual initiation and satisfaction	-.042	.013	9.948	.002*	.959 (.935-.984)
Refusal of unwanted sex	-.121	.019	38.118	.000*	.886 (.852-.921)
Sexual history communication	-.004	.017	.056	.813	.996 (.963-1.030)
Relationship					
Hooking up					
1-2 times (vs Never)	.527	.388	1.843	.175	1.694 (.791-3.624)
3-5 times (vs Never)	-.638	.496	1.648	.199	.528 (.200-1.399)
5-10 times (vs Never)	1.367	.515	7.023	.008*	3.922 (1.427-10.776)
10 or more times (vs Never)	.990	.333	8.812	.003*	2.692 (1.400-5.175)
Witness Family Violence					
Yes (vs No)	-.268	.308	.756	.385	.765 (.418-1.399)
Parenting style					
Parental involvement	-.040	.031	1.605	.205	.961 (.904-1.022)
Psychological autonomy granting	.008	.024	.110	.740	1.008 (.961-1.058)
Peer deviance	.544	.308	3.122	.077	1.724 (.942-3.153)
Length of the relationship					
6 months to 1 year (vs less than 6 months)	-.666	.351	3.587	.058	.514 (.258-1.024)
1- 3 years (vs less than 6 months)	-.380	.301	1.590	.207	.684 (.379-1.235)
3-5 years (vs less than 6 months)	-1.031	.487	4.481	.034*	.357 (.137-.926)
More than 5 years (vs less than 6 months)	-	.	.	.	2.428E-13 (.000-.00)
	29.046 ^b				

Social Support	-019	.030	.416	.519	.981 (.924-1.041)
Community					
Place of residence					
Fraternity/Sorority house (vs Residence Hall)	-.556	.707	.619	.432	.573 (.143-2.294)
Off campus alone or with non-romantic partner (vs Residence Hall)	.176	.406	.189	.664	1.193 (.538-2.643)
Off campus with a romantic partner(vs Residence Hall)	.041	.558	.005	.941	1.042 (.349-3.114)
At home with parents (vs Residence Hall)	.497	.550	.814	.367	1.643 (.559-4.831)
Affiliation to Fraternity/Sorority					
Yes (vs No)	-.278	.296	.880	.348	.758 (.424-1.353)
Affiliation to NGO					
Yes (vs No)	-.101	.268	.142	.707	.904 (.534-1.530)
Societal					
Perceived discrimination					
Yes (vs No)	-.777	.254	9.328	.002*	.460 (.279-.757)

3. Multiple Linear Regression

Multiple linear regression was used to determine the weighted score of severity and frequency of the sexual violence victimization among college students in dating relationships. All the constructs that have had a significant impact in previous

regression model have been regarded as the independent variables for this regression model.

The direct entry method was used to model gender, year of schooling, hooking up culture, sexual assertiveness, parenting style and perceived discrimination in predicting the severity and frequency of the sexual violence. ANOVA test determined the significance of the model and R square value determined the variance that can be predicted by the independent variable.

Individual level: The regression model showed that being a female ($B=.277$, $t=4.097$, $p<0.05$) was the significant positive predictors of severe and frequent sexual violence victimization among college students in dating relationships. Communication skills ($B=-.013$, $t=-3.799$, $p<0.01$) and refusal skills ($B=-.043$, $t=-8.894$, $p<0.01$) were major factors in decreasing the severity and frequency of the sexual violence.

Relationship Level: Engaging in hook ups during college were the significant positive risk factor of severe and frequent sexual violence victimization among college students in dating relationships

These four variables significantly predicted the weighted score of sexual violence, $F(21,325) = 10.761$, $p<0.01$). The value of R^2 for this model is 0.410 which signifies that these variables account for 41% of the variance related to the dependent variable. No variables associated with community and societal level of the ecological model had significant association with severe and frequent sexual violence in college.

Table 4. 21: Parameter Estimates from multiple linear regression for predicting sexual violence by college students in dating relationships (n=347)

Variables	B	S.E	t	Sig
Gender				
Female (vs Male)	.277	.068	4.097	.000* (.144-.411)
Non-binary (vs Male)	.283	.208	1.362	.174 (-.126-.692)
Year of Schooling				
Sophomore (Vs Freshmen)	.158	.087	1.820	.070 (-.013-.330)
Junior (Vs Freshmen)	.056	.088	.641	.522 (-.116-.229)
Senior (Vs Freshmen)	.177	.092	1.926	.055 (-.004-.357)
5+ Senior (Vs Freshmen)	.252	.130	1.940	.053 (-.004-.508)
Sexual Assertiveness				
Communication about sexual initiation and satisfaction	-.013	.003	-3.799	.000* (-.019- (-.006)
Refusal of unwanted sex	-.043	.005	-8.894	.000* (-.053- (-.034)
Sexual history communication	-	.004	-.022	.982 (-.008-.008)
	9.181E-			
	5			
Hooking up				
1-2 times (vs Never)	.297	.097	3.062	.002* (.106-.488)
3-5 times (vs Never)	.009	.128	.074	.941 (-.241-.260)
5-10 times (vs Never)	.458	.165	2.776	.006* (.133-.783)
10 or more times (vs Never)	.217	.085	2.561	.011* (.050-.383)
Parenting style				

Parental involvement	-.010	.007	-1.409	.160 (-.024-.004)
Psychological autonomy granting	0.005	0.006	.931	.353 (-.006-0.16)
Peer deviance	.062	.088	.701	.484 (-.112-.236)
Length of the relationship				
6 months to 1 year (vs less than 6 months)	-.055	.088	-.625	.532 (-.228-.118)
1- 3 years (vs less than 6 months)	-.114	.081	-1.411	.159 (-.272-.045)
3-5 years (vs less than 6 months)	.033	.103	.323	.747 (-.170-.237)
More than 5 years (vs less than 6 months)	-.216	.215	-1.007	.315 (-.639-.206)
Perceived discrimination				
Yes (vs No)	-.216	.215	-1.007	.315 (-.639-.206)

Summary of Results:

This chapter presented the results of the hypothesis and research questions for this research. Exploring the relation between gender and sexual violence victimization, it has been confirmed that gender plays a significant role in predicting all forms of sexual violence of varying severity. On the other hand, the sexual orientation of the college students only has association with the overall sexual violence and unwanted sexual contacts. These findings also put the light on the constructs of the individual level, relationship level and societal level factors of the ecological model. Gender and year of schooling related to individual level, hooking up culture, parental involvement in the upbringing of the students related to relationship level were significantly associated with the severity and frequency of the sexual violence. Having good communication skills about sexual feelings and refusal skills stood out as the strong positive predictors in all of our regression models.

Chapter 5

Discussion

Although there have been numerous studies conducted about sexual violence in college populations, there is limited research exploring sexual violence victimization in dating relationships. Our study investigated whether prevalence of sexual victimization differed by gender and sexual orientation and explored the risk factors associated with sexual violence including unwanted sexual contacts, attempted rapes and completed rape using the ecological model. This study suggested that being female, engaging in hook-ups, having low sexual assertiveness, low parental involvement and peer influence are associated with sexual violence victimization among college students in dating relationships. Unlike previous studies, this study did not find an increased risk of sexual violence among sexual minority college students in comparison to heterosexual college students in dating relationships. This chapter includes prevalence of sexual violence victimization, evaluation of hypothesis testing, discussion of results, reliability and validity of the instrument used, limitations, implications, recommendations for future research and conclusions.

Prevalence of Sexual Violence Victimization among college students in dating relationships

Among 351 college students who completed the survey, 123 participants (35.04%) have experienced at least one type of sexual violence while in a college from their dating partners. 29.7% of the undergraduate girls reported some type of sexual violence in comparison with 5.2% of male participants. In regards to the male sample,

the prevalence of sexual violence victimization is low in comparison to previous studies (Mellins et al., 2017). However, as most of the studies conducted to date have enrolled college women as their target population, it is difficult to compare the prevalence based on few studies that looked into some dimensions of sexual violence for a brief period of time. A similar rate of prevalence was reported in a comprehensive report from Department of Justice with a stark difference between the male and female college students (Fisher, Daigle, Cullen, & Turner, 2003). Our data suggest a higher prevalence than 1 in 4 or 1 in 5 prevalence estimates by previous studies with the national sample concerning sexual assault on campus (Cantor et al., 2015; Krebs et al., 2016). Since 9 out of 10 sexual violence cases are documented to be perpetrated by a casual acquaintance, first date or friend (Gidycz et al., 2008), it is acceptable that the prevalence found is higher when considering only those relationships.

All of 123 participants reported experiencing some form of unwanted sexual contact in dating relationships while in college. 31% of the undergraduate participants had experienced attempted rape either by verbal coercion or physical force from their romantic partner. Similarly, 24.6% of the participants had experienced completed rape either by verbal coercion or physical force. In both of the cases, the prevalence of female sexual violence victimization by their partners is almost 5 times greater than male victimization (5.2% male vs 25.8% female for attempted rape; 4.3% males vs 20.3% females for completed rapes.) While there are numerous studies which are focused on the sexual violence/ sexual assault on campus, only two studies have acknowledge the sexual violence perpetrated by their dating partner. A study conducted among Spanish college women confirms the prevalence rate of attempted rape among

college women (Santos-Iglesias & Sierra, 2012). However, this study reports a subsequent higher percentage of rape cases perpetrated by their dating partners in comparison to our study. A recent study looking at unwanted sexual acts among university students documented that the most frequently reported victim of unwanted sexual contact was a current or former partner while strangers were the most frequently reported victims of sexual violence (J. C. Campbell et al., 2017).

Results of Hypothesis Testing:

Three phases of research questions were developed for this study. Two of the research questions based on the difference in gender and sexual orientation were then used to create two sets of hypotheses that consists of the null hypothesis and alternative hypothesis. The third research question of our study was to explore the relationship between the constructs related to the individual, relationship, community, and societal level.

Hypothesis 1: The prevalence of sexual violence victimization in OU students is higher in sexual minority college students than heterosexual college students.

Alternative Hypothesis 1: The prevalence of sexual violence victimization is significantly higher in heterosexual college students than sexual minority college students.

Null Hypothesis 1: There is no significant difference in prevalence of sexual violence victimization among sexual minority and heterosexual students.

The results showed that there was a significant difference in prevalence of any type of sexual violence sexual violence and unwanted sexual contacts between sexual minority and heterosexual college students. Therefore, we reject the null hypothesis as the prevalence of sexual violence victimization is significantly higher in heterosexual students as compared to sexual minority college students while comparing overall for sexual violence and unwanted sexual contacts. For attempted rapes and completed rapes, there is no any significant differences between these groups.

In contrary to most of the previous research (Dank et al., 2014; Reuter et al., 2017), our study found results supporting heightened risk for sexual violence among heterosexual college students. The difference in the prevalence rates is almost double in heterosexual college students when compared with sexual minority college students in all types of sexual violence. This variation in comparison to previous studies could be because of our low sample size of students representing LGBTQ community. Also, all the previous studies have reported the prevalence of campus sexual assault perpetrated by various perpetrators while this study specifically studied the violence perpetrated by their current or recent dating partners. More research within each of these groups, preferably using mixed methods, is needed to understand their relationship with the perpetrators of the sexual violence.

Hypothesis 2: The prevalence of sexual violence victimization will be higher among female college students than in other college students.

Alternative Hypothesis 2: The prevalence of sexual violence victimization will be higher among male college students than in other college students.

Null Hypothesis 2: There will be no significant difference in prevalence of sexual violence victimization among college students in regards to their gender.

The Chi-square test examined the difference between the prevalence of sexual violence victimization among male and female college students of OU. As like in Hypothesis 1, the differences were evaluated on 4 categories. For all these four categories, the prevalence of sexual violence victimization was significantly higher in female college students. Based on these findings, the null hypothesis was rejected.

Similar to other studies (Conley et al., 2017; Turchik & Hassija, 2014), college women had much higher rates of experiencing any type of sexual violence while in college compared to the college men in dating relationships. Irrespective of the relation with the perpetrators, women are five times more vulnerable to sexual violence including rape. Due to this distinct difference, most of the research in this area are targeted to only women even though a percentage of men are also sexually victimized by their partners. It is interesting to note that the prevalence of rape cases in men is relatively low than what has been reported in the previous studies where the prevalence rate ranges from 11%-17% (Conley et al., 2017; Turchik, 2012), One possible explanation for these results may be that men who experience victimization are more likely to experience violence from people other than their romantic partner.

Additionally, male victims having more adherence to traditional masculine ideals might deny that they were raped by their current or recent love interest and would further be less likely to report or seek help (Turchik, 2012). Also, reporting bias could come into play when they are reporting about something very personal like sexual violence in the

dating relationship. Further research is necessary to know more about male college students and their experiences related to sexual violence.

Research Question 3: From a social ecological perspective, what are the risk factors of sexual violence victimization among college students in dating relationships at a southwestern university?

Each of the constructs associated with each level of the social ecological model was analyzed using the regression model with sexual violence victimization, counts of unwanted sexual contacts, attempted rapes, completed rapes and the combined score of severity and frequency of the sexual violence as the dependent variables.

Individual-level constructs:

The year of schooling and participants' sexual assertiveness were found to be determining factors that were found to be associated with sexual violence experienced in the dating relationships while in college. Both being in senior year and having strong sexual assertiveness (better communication skills about sexual initiation and satisfaction and refusal skills of unwanted sex) was found to be significant negative risk factors of ever experiencing sexual violence in dating relationships while in college. Although no reports were found that claimed the significant differences among college students in various years of schooling (Coulter et al., 2017), gaining maturity and having knowledge on what is right or wrong while dating with growing age could be the factors behind making students in senior years a less vulnerable population. Since freshman year was treated as a reference group in all of our analysis and no rigorous comparison were done between the participants from different school years, our study cannot

confirm that the red zone exists during the freshman year. Many of the previous studies support the existence of a “red zone” which is defined as the length near the beginning of the students’ time at a university in which they are at a heightened risk of sexual violence (Cranney, 2015; Flack Jr et al., 2008). Similar to our study, lower sexual assertiveness has been documented as the only risk factor of the adolescent and adult sexual victimization in college students (Santos-Iglesias & Sierra, 2012). Feeling obliged to fulfill their partner’s sexual needs make them less able to directly refuse undesired sexual contact with proper communication skills.

Similarly, participants’ gender and their sexual assertiveness especially communication and refusal skills associated with unwanted sex are the significant risk factors associated with revictimization of sexual violence including attempted and completed rape. In this study, the change in the counts of sexual violence portrays the revictimization scenario among the college students. Notably, in the case of the dating relationships, women who have experienced prior sexual violence victimization may refrain from acting assertively even in future encounters because they believe that their efforts will be ignored or dismissed like in previous situations (Kelley et al., 2016).

No significant association was found between drinking behavior and sexual violence among college students in dating relationships in our study. Drinking behaviors of college students have been documented as a strong mediator in predicting sexual victimization among female and male college students in general college setting (Tyler et al., 2017). It is possible that college students use alcohol to initiate sexual assaults in other environment like gatherings or parties in campus, but the intake of alcohol may not be a significant reason behind sexual violence in dating relationships.

Similarly, no significant differences were found in sexual violence victimization among college students from varied race/ethnicity. Nevertheless, there might be a possibility of differences in the prevalence when looked into the intersection of gender identity, sexual identity and race/ethnicity as presented by research conducted by Coulter et al.,2017. Both mental health status and risky sexual behavior of the participants' made no significant association with the incidences of the sexual violence victimization in college men and women. Our study used Kessler Psychological Distress Scale K6 to assess the serious mental illness comprehensively among college sample and was not used to differentiate into depression and anxiety symptoms. Particularly in female sample, the depressive symptoms were found to be associated with the sexual assaults faced while in college (Conley et al., 2017) but, in another study, the components of mental health did not relate to sexual violence outcomes among sexual minority college students (Reuter et al., 2017).

Relationship level constructs

The results of the logistic regression model showed that the frequency of hooking up was the strongest predictor of experiencing sexual violence in dating relationships while in college. Interestingly, the fewer frequency of hook ups that a person had in comparison to never being involved in the one was a strong predictor in ever experiencing the sexual violence among undergraduates in the dating relationship. This result differs with our other results that have frequency and severity of sexual victimization as the dependent variable later in the study.

College students who hooked up more often were significantly more likely to experience frequent sexual victimization including attempted and completed rapes confirming revictimization in dating relationships. This relation has also been confirmed by few previous research conducted among female students while in college (Sutton & Simons, 2015; Tyler, Schmitz, & Adams, 2017). College women who are involved in frequent hook-up relationships have increased the risk for sexualized touching, attempted penetrative and penetrative acts while college men have been documented to only have heightened risk for sexual touching (Mellins et al., 2017).

Parental involvement was found to be the significant negative predictor of unwanted sexual contacts and attempted rapes. Similar to our study, lower levels of reported parental involvement has been associated with increased risk of sexual violence among college males and females (Conley et al., 2017). Thus, parents have now emerged as a focal point, to partner with, for possible collaboration in structuring strategies against violence in the campus. Relatively shorter length of relationships (few years long) could reduce the risk of sexual violence among college students while comparing with new or longer than 5 years of relationship. This result contradicts with the previous research which has stated that nature and frequency of violence changes over time and after the commitment have been established in dating relationships (Kaukinen et al., 2012).

Peer influence increased the risk of attempted rapes by verbal coercion and physical force. As the scale used to measure the peer influence was not found to be reliable for college students aged 18-24, more research is needed to understand the relationship between victimization and peer influence. Although there is a paucity of

research looking into social support in relation to sexual violence, the higher level of social support has been documented to serve as a protective factor for sexual victimization among college students (Conley et al., 2017). This finding promotes and encourages active bystander intervention programs in college settings that can reduce sexual harassment in the college environment. Given that our study only looked into sexual violence among college students in dating relationships, social support was found to have negligible effect in protecting against the sexual violence. Because of this, may be, the active bystander prevention program may not be a sufficient program to reduce sexual violence victimization among college students in intimate relationships.

Even though students with a history of hooking up were more likely to report incidents of unwanted sexual intercourse, unlike in our study, the number of hookups was not a contributing factor for experiencing unwanted intercourse among students from a northeastern university of the United States (Flack Jr et al., 2007). Our study stresses on the need to address and intervene hook-up culture in the United States that has the potential to increase sexual violence and affect college students.

Community-level constructs:

Our study investigated whether the place of residence, involvement in Non-Government Organization (NGO) and affiliation to fraternity/sorority groups on campus are correlated with sexual victimization among college students in dating relationships. Based on the logistic regression and negative binomial regression models, none of the constructs related with the community level of an ecological model were found to be the

significant predictors of the sexual violence victimization among college students in the dating relationship.

The finding of this study contradicts with previous studies. Participants associated with NGO for LGBT were found to be more likely to have had experienced sexual violence among Males Having Sex with Men (MSM) in Brazil (Sabidó et al., 2015). Similarly, college students who are affiliated with fraternities and sororities were more likely to experience any sexual assault than those who are not (Mellins et al., 2017). Sorority membership also increased the risk of attempted rape and completed rape among college women (Minow & Einolf, 2009). This study also suggested that the weekly alcohol consumption acts as a covariate in predicting all three types of sexual victimization. On the contrary, no factors of community-level were associated with sexual violence perpetrated by participants' partner/s. This may be due to the fact that sexual violence between couples is majorly determined by their behavior and way these students handle relationships rather than other environmental and community factors surrounding them.

Societal level constructs

This study suggested that perceived discrimination based on race/ethnicity/nationality/ sexual orientation was a risk factor of sexual violence victimization among college students in dating relationships. Interestingly, perceived discrimination was found to have a significant positive impact on determining whether or not a person in dating relationship ever experienced sexual violence or not. On the other hand, it was found to increase the risk of completed rapes in undergraduates in

dating relationship while there was no significant impact of perceived discrimination in determining the severity and frequency of the sexual violence in the dating relationship. As the perceived discrimination experienced by the participants were asked using only a question, our instrument may have inadequately captured this domain. Since not a lot of research has included this domain in their research, further detailed research is needed to explain this association.

Evaluation of Instrument Reliability and Validity:

All the scales used in this study are the validated tools used in previous studies and have been reviewed for reliability and validity using Cronbach's alpha and confirmatory factor analysis respectively. Scales used in this study have been previously used in studies involving adolescents and college students. Once the instrument was compiled, some students from Department of Health and Exercise Science were asked to be involved in the pre-testing of the tool using both traditional pen-paper method and through the Qualtrics survey. According to their suggestions, few typos were corrected and updated tool was used to enroll participants through the mass email system.

Out of 7 scales used in this study, the risky sexual behavior scale and peer deviance scale were found be unreliable for our study sample. The scale related to risky sexual behavior had a reliability coefficient of 0.25 which was very less than the optimum reliability coefficient of 0.7. This scale has also been documented to have reliability coefficients of 0.70-0.85 across 4 time points in a study conducted among high school students. As our target population involved college youths, a revised edition of this scale could help us capture the risky sexual behaviors of 18-24 aged

population. Due to this reason, this scale was not used in our further analysis. Nevertheless, the item related to “ever have had sexual intercourse without condom” has been treated as the risky sexual behavior in the analysis. This item has been dichotomized and used as a risk factor in individual level of ecological model. Moreover, the model risk scale that measured peer deviance had unsatisfactory reliability coefficients of 0.49 even after elimination of one item. This scale was also a pre-validated and reliability tool which had an average α of 0.75 (Vazsonyi et al., 2010). Since this previous study was conducted for a large sample of middle and late adolescents living in various countries of two different continents, the sampling mismatch could be a problem while assessing peer deviance in a different age-group population.

Confirmatory factor analysis using principal component method was used to look into the construct validity of the scales used in this study. Given that no instrument/scales were created specifically for this study and all the scales were validated in the previous studies, confirmatory factor analysis was conducted to reconfirm the factor loading. Considering factor loading of 0.40 as a cut-off point (B. G. Tabachnick & Fidell, 2007), all the items were retained. Given that the shorter version of scales have excellent goodness-of-fit indices and were similar to those with more number of items (Holden et al., 2014), for both sexual assertiveness and social support scale, the scales with fewer items were used.

Limitations:

Several limitations should be considered while interpreting the results and explanations of this study. This study only focused in sexual violence among undergraduate students who are in dating relationships while in the college, thus the results might be different from studies that looked into sexual assault in college in general or that focused on a certain time period. Also, the only perpetrators of these kinds of sexual violence have been regarded as the participants' romantic partner which could limit the incidences of sexual violence victimization among college students. The study design is cross-sectional, therefore the associations found between the variables cannot be assumed to have casual relationships.

Participation in this study was voluntary and was recruited from a convenience sample of undergraduates students at the University of Oklahoma, thus the findings may not be generalized to other general youths of same age group. Since the participants were asked about the incidents that happened while they were in college, they may or may not have recalled the information correctly. Moreover, the data collection was conducted through the long self-administered online survey which increases the chances of dropping out between the sections of the survey. Although the instrument used were divided into sections, around 17% of the participants who started the survey dropped out or did not complete enough portion of the survey needed to be included in the data analysis. Additionally, the self-reported data has its own share of issues related to dishonesty and inaccuracy.

Another limitation of this study was the exclusion of the construct- Child Sexual Abuse -while assessing the individual level of the ecological model. Even though this variable has been documented to be the strongest predictor of adolescent sexual abuse, the questions related to this variable were not asked in our instrument in order to refrain from mandatory reporting laws that require reporting child abuse and neglect to a proper authority. Future research could include this variable and use shorter instruments in order to have a better study on this topic.

Recommendations for future research

This study used an ecological model in order to assess the risk factors of sexual violence among the college students in dating relationships. Various previous researchers have used the term sexual violence, sexual assault, and sexual harassment interchangeably and have defined them in their own terms and scope of the study. It will be useful if the future research adhered to an inclusive and comprehensive definition of the sexual violence so that they can be easily compared and generalized. Further studies also can have these research implicated across other population which includes the vulnerable groups of the population like LGBTQ population. As a majority of people suffer sexual violence from their significant partner, it is deemed necessary to conduct more research in this area to identify risk factors and design and implement the prevention programs.

On the other hand, the behavior like sexual violence follows the history of violence that may have had started from childhood. Longitudinal research starting from early life or middle school can provide some rationales on how adolescent sexual

violence occur and reoccur throughout their adult life and manifest in their dating relationships. These research findings can then be used as a foundation to initiate prevention strategies and intervention early in the middle school where most of the school students start to hit puberty and engage in dating relationships. Epidemiological research and intervention on the sexual violence victimization across sexual identity and gender identity would better help us tailor sexual assault prevention and treatment for college students. These recommendations would contribute to the existing body of literature and produce research worth consulting before planning the intervention against sexual violence.

To date, research has mainly examined the relationship between individual variables in relation to sexual violence. This study shows additional variables at multiple levels of an ecological framework are associated with sexual violence victimization among college students. Future research could look into variables related to the social environment that could increase the risk of sexual assaults in domestic and campus environment. The prevention programs directed to minimize sexual violence in youths promoted by Center of Disease Control (CDC) and World Health Organization (WHO) are based on the ecological model given that sexual violence is a complicated public health issue (Organization, 2013a). Modifying these programs to address sexual violence's prominent risk factors related to various level of ecological model could maximize the effectiveness of the program at a limited cost. Additionally, rigorous statistical analyses like structural equation modeling can be implied to determine the variables with direct and indirect effects on the sexual violence victimization among college population. This could help the health promoters and program planners to

design, pre-test and implement the prevention programs surrounding those variables with the high association with the outcome.

Conclusion:

Although factors related to sexual assault on campus have been identified in the previous literature, this study uniquely examines the factors of sexual violence among college students in dating relationships using an ecological framework. Almost 4 in 10 college students are experiencing sexual violence perpetrated by their dating partners while every 2 in 10 college students have experienced rapes, with college women experiencing significantly higher rates compared with college men. This study also sheds light on the sexual violence victimization in men thus validating the prevention program to be gender inclusive. Clearly, the prominent risk factors of sexual violence victimization among college students in dating relationship are different than college students facing wide range of sexual assaults from different perpetrators. The use of alcohol seemed to have a prominent link in increasing the risk of sexual violence in general (Tyler et al., 2017) and social support were found to have lessen the sexual violence incidences (Conley et al., 2017). But, as our study only considered the sexual violence that have occurred in the dating relationships, the risk factors did not necessarily coincide with the previous studies. Thus, a key conclusion is that a “one size fits all” intervention programs may need to be altered to target college students experiencing sexual violence from their dating partners (Mellins et al., 2017). Even though, bystander intervention have shown to reduce sexual violence incidences in social situations, same intervention would not work when two dating partners are involved in a private place. Creating effective intervention and strategies involving

parents and peers and designing consent education to boost their sexual assertiveness skills could empower the possible victims of the sexual assaults even from their loved ones.

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Appendix A Instrument

Consent Form to Participate in a Research Study

You are being asked to participate in a study that is titled “Risk Factors for sexual violence among College Students in dating relationships: An ecological study.” Shristi Bhochhibhoya, a graduate student of Master in Health Promotion is leading this study as the principal investigator under the mentorship of Dr Sarah Maness. This research is being conducted through the University of Oklahoma. You are being asked to volunteer for this research study. You were invited to participate because you are a young adult between the ages of 18-24. You must be at least 18 years old and a student at OU. Employees of the University of Oklahoma are not eligible to participate in the study.

Please read this document in its entirety before agreeing to take part in this research:

What is the purpose of the study?

The purpose of this study is to determine prevalence and predictors of sexual violence among college students in the dating relationship. The goal of this research is to identify predictors related to the individual, interpersonal, community, and societal level.

How many participants will be in this research?

About 400 students will take part in this study

What will I be asked to do?

If you agree to participate in this study, you will respond to a survey. The survey will take approximately 15-20 minutes. The survey will ask you questions about your demographics information, interpersonal relationship, individual behavior, family life

and sexual behavior.

Do I have to participate in this study?

You have the choice not to participate in this study. The study is completely voluntary and you are able to withdraw your participation at any time without penalty.

What are the risks and benefits?

There are no direct benefits to participating in this study. Risks of the study may be emotional discomfort, upset, or anxiety due to the sensitive nature of the sexual history questions. If you experience any kind of psychological discomfort, the following resources could be helpful to you. **OU Advocates [Norman/HSC (405) 615-0013 answered 24/7; Tulsa (918) 660-3163, after hours (918) 743-5763] OU Counselling and Psychology Clinic (405.325.2914)**

Will I be compensated?

If you would like to be entered into a raffle to win a gift card worth \$15 to compensate for your time please provide your email address by clicking a separate link at the end of this survey. Thirty randomly selected winners will be notified by email after data collection procedure is completed. Your participation in a raffle is voluntary and your email address will not be used for any other purposes. After the end of the study, ALL email addresses collected from this study will be deleted.

Who will see my responses?

Your responses will be confidential and not shared outside of the research team. The demographic information that we are collecting (e.g., country of birth, race, year in college, etc.) may make it possible for someone to deduct your identity, so if you are concerned about this, feel free to skip any demographic questions you believe could lead to your identification. All study documents will be kept either in Qualtrics or in a locked cabinet in the principal investigator's office. If results from this study are published, no information that would allow someone to link your responses back to you will be included. Data are collected via an online survey system that has its own privacy and security policies for keeping your information confidential. Please note no assurance can be made as to the use of the data you provide for purposes other than this research.

Who can I contact regarding this study?

If you have any questions, concerns, or complaints regarding this study, you may contact Dr. Sarah Maness at 405-325-4984 or smaness@ou.edu OR Shristi

Bhochhibhoya at 405-693-6020 or bshristi1212@ou.edu. You may also contact the University of Oklahoma Norman Campus Institutional Review Board at 405-325-8110 or irb@ou.edu if you have questions about your rights as a participant, concerns or complaints and you would like to talk to someone other than the researcher(s). By providing this information to the researcher(s), I am agreeing to participate in this study. Please print this document for your records.

This research has been approved by the University of Oklahoma, Norman Campus IRB

IRB Number: 8709 Approval Date: 12/04/2017

Please select YES if you agree to participate in this study.

_____ YES

_____ NO [Thank you for your participation]

Have you ever been in dating relationship? (For this study, dating relationship means ““having a boyfriend or girlfriend you were dating or currently dating (i.e going out or socializing without being supervised) or someone you spend with (that might involve sex) for at least one month”)

_____ YES

_____ NO [Thank you for your participation!]

SECTION I: DEMOGRAPHICS AND OTHER

1. Gender Identity (Choose all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Agender | <input type="checkbox"/> Trans man |
| <input type="checkbox"/> Androgyne | <input type="checkbox"/> Trans woman |
| <input type="checkbox"/> Demigender | <input type="checkbox"/> Woman |
| <input type="checkbox"/> Genderqueer or gender fluid | <input type="checkbox"/> Questioning or unsure |
| <input type="checkbox"/> Man | <input type="checkbox"/> Prefer not to disclose |
| <input type="checkbox"/> Additional gender category/identity: Please specify _____ | |

2. Sexual Orientation (Choose all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Asexual | <input type="checkbox"/> Queer |
| <input type="checkbox"/> Bisexual | <input type="checkbox"/> Pansexual |
| <input type="checkbox"/> Gay | <input type="checkbox"/> Questioning or unsure |
| <input type="checkbox"/> Straight (heterosexual) | <input type="checkbox"/> Same gender loving |
| <input type="checkbox"/> Lesbian | <input type="checkbox"/> Prefer not to disclose |

An identity not listed: Please specify _____

3. . What is your race?

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Hispanic
- Other

4. What is your country of birth? _____

5. What year in college are you?

- 1st year (Freshman)
- 2nd year (Sophomore)
- 3rd year (Junior)
- 4th year (Senior)
- 5 or more years (Senior)

6. Are you involved in any student groups (Fraternity/sorority)?

- Yes
- No

7. Where are you living in the current semester?

- Residence hall/dorm/ student housing house
- Fraternity/Sorority house
- off campus alone or with a friend/non-romantic roommate
- At home with parents
- off campus with a romantic partner/spouse

8. Are you presently in an exclusive dating relationship? (For this study “exclusive dating relationship” means “having a boyfriend or girlfriend you were dating or currently dating (i.e going out or socializing without being supervised) or someone you spend with (that might involve sex) for at least one month”)

Yes (If yes, continue Question 9,10 and skip 11,12,13)

No (If no, go to Question 11)

9. What is the gender of that person?

- Female
- Male
- Other

10. How long have you been dating?

- Less than 6 months
- 6 months to 1 year

- 1 year to 3 years
- 3 years to 5 years
- More than 5 years

11. If you are not currently in an exclusive dating relationship, specify when your most recent exclusive dating relationship began _____

- 1 year ago
- 3 years ago
- 2 years ago
- 4 years ago

12. What is the gender of the person?

- Male
- Female
- Other

13. How long did you date that person?

- Less than 6 months
- 6 months to 1 year
- 1 year to 3 years
- 3 years to 5 year
- More than 5 years

14. How many times in the past 12 months have you hooked up? (For this study, “hooking up” means “an event in which two people are physically intimate outside of a committed relationship without any expectation of future encounters”)

- 0 (never)
- 1 (1-2 times)
- 2 (3-5 times)
- 3 (5-10 times)
- 4 (10 or more times)

15. Before age 18, did you at some point witness physical violence between your parents or other people who raised you (e.g., hitting, slapping)?

- Yes
- No

16. Do you belong to any NGO (any non-profit, voluntary citizens' group which is organized on a local, national or international level) pertinent to your sexual orientation (For instance: Transgender Law Center/ LGBT Ally)?

- Yes
- No

17. Have you perceived any discrimination due to sexual orientation/race/nationality in past 12 months?

- Yes
- No

SECTION II: Sexual Victimization Survey

	Never	Not in past 12 months	Once	Twice	3 Xs	4+ Xs
A partner touched me sexually when I didn't want him/her to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner forced me to have sex when I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner threatened me in an attempt to have sex with me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner kissed me when I didn't want him/her to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner threatened to leave or end the relationship if I wouldn't have sex with him/her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner got me drunk or gave me drugs in order to have sex with me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner warned me that I could get hurt if I resisted him/her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner told me that it was too late to stop a sexual encounter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner told me that he/she could find someone else to give him/her sex if I wouldn't.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner called me an angry name and pushed me away because I would not give him/her sex.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner has gotten drunk or high and forced me to have sex with him/her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A partner told me that my refusal to have sex was changing the way he/she felt about me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have given into sex play (fondling, kissing, or petting, but not intercourse) when I didn't want to because I was overwhelmed by a partner's continuous arguments and pressure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I have given in to sexual intercourse when I didn't want to because I was overwhelmed by a partner's continual arguments and pressure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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SECTION II: DRINKING BEHAVIOR: (0 NEVER TO 5= 5 OR MORE DAYS PER WEEK)

	0	1	2	3	4	5 /more per wk.
During the past 12 months, how many times have you gotten drunk on alcohol?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During the past 12 months, how many times have you consumed five or more (if you are a man)/ four or more (if you're a woman) drinks in a single sitting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION III: PEER DEVIANCE MODEL:

Which of the following acts did you participate in with these friends and how often?	A: none	B:some	C: a lot
1. Vandalism (e.g. smashing bottles, graffiti, or destroying property)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Drugs (e.g. marijuana, cocaine, heroin, or crack)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Minor theft (\$50 or less)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Major theft (\$50 or more)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Assault (e.g. threatened to hit, hit or injured someone)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION IV: SEXUAL ASSERTIVENESS QUESTIONNAIRE

	1 (strongly disagree)	2	3	4	5	6	7 (strongly agree)
1. I feel uncomfortable telling my partner what feels good.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I feel uncomfortable talking during sex.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am open with my partner about my sexual needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I let my partner know if I want to have sex.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I feel shy when it comes to sex.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I approach my partner for sex when I desire it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I begin sex with my partner if I want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. It is easy for me to discuss sex with my partner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I refuse to have sex if I don't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I find myself having sex when I do not really want it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I give in and kiss if my partner pressures me, even if I already said no.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. I have sex if my partner wants me to, even if I don't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. It is easy for me to say no if I don't want to have sex.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I would ask my partner about his or her risk of HIV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I would ask my partner if he or she has had sex with someone who shoots drugs with needles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I ask my partner if he or she has practices safe sex with other partners.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I ask my partners about their sexual history.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I ask my partners whether they have ever had a sexually transmitted infection/disease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION V: RISKY SEXUAL BEHAVIOR SCALE

	1: Never	2: Sometimes	3: A lot
1. Have you ever given money or something else for having sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Have you ever received money or something else for having sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Have you ever had sex without a condom?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Have you ever stripped or done something sexual in front of a webcam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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SECTION VI: MENTAL HEALTH

The following question ask about how you have been feeling during the past 30 days. For each question please circle the number that best describes how often you had this feeling.

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
During the past 30 days, about how often did you feel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Nervous?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Hopeless?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Restless or fidgety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. So depressed that nothing could cheer you up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. That everything was an effort?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Worthless?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION VII: SOCIAL SUPPORT

People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kinds of support available to YOU if you need it?

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
a. Someone to help you if you are confined in bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Someone to take you to doctor if needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

c. Someone to share you most private worries and fears.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Someone to turn to for suggestions about problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Someone to do something enjoyable with.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Someone to love and make you feel wanted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION VIII: PARENTING STYLE INDEX

Please answer the next set of questions about the parents (or guardians) you live with. If you spend time in more than one home, answer the questions about the parents (or guardians) who have the most say over your daily life.

	Strongly agree	Agree somewhat	Disagree Somewhat	Strongly disagree
1. I can count on my parents to help me out, if I have some kind of problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. My parents say that you shouldn't argue with adults.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. My parents keep pushing me to do my best in whatever I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. My parents say that you should give in on arguments rather than make people angry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. My parents keep pushing me to think independently.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. When I get a poor grade in school, my parents make my life miserable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. My parents help me with my schoolwork if there is something I don't understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. My parents tell me that their ideas are correct and that I should not question them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. When my parents want me to do something, they explain why.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Whenever I argue with my parents, they say things like, "You'll know better when you grow up."	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. When I get a poor grade in school, my parents encourage me to try harder.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. My parents let me make my own plans for things I want to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. My parents know who my friends are.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. My parents act cold and unfriendly if I do something they don't like.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. My parents spend time just talking with me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. When I get a poor grade in school, my parents make me feel guilty.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. My family does things for fun together.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. My parents won't let me do things with them when I do something they don't like.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
