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AN EXAMINATION OF MEDIATING
FACTORS ON RISK

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ABSTRACT

DISABILITY STATUS AND VICTIMIZATION: AN EXAMINATION OF MEDIATING FACTORS ON RISK

By

TAYLOR LYNN GANN

MAY, 2018

Committee Chair: Dr. Brent Teasdale

Major Department: Criminal Justice & Criminology

Current estimates of the world's population demonstrate that approximately 15-19 percent of individuals possess some form of disability (Hughes et al., 2012). Studies examining the victimization risk of this group have found that the disabled are approximately two times more likely to experience victimization, as compared to their non-disabled counterparts (Emerson & Roulstone, 2015; Sobsey, 2014). In addition to the increased likelihood of victimization, researchers have documented variation in risk across different disability statuses (Kahlifeh et al., 2013; Turner et al., 2011). Although there is evidence of a differentiation in risk, reasons behind this variation have been neglected. Furthermore, studies regarding the victimization of some forms of disability, such as the hearing impaired, have been limited. Utilizing Cohen and Felson's (1969) routine activities theory, a series of multivariate logistic regressions were conducted employing data from the Life Opportunities Survey collected in the U.K. The first step in the analysis was to establish victimization risk across disability statuses. Second, target suitability, guardianship, and exposure factors associated with varying forms of impairment were incorporated to account for any potential mediation of the association between disability status and the outcome variable, victimization. I found that there is significant variation in risk across

disability statuses. In addition, aspects of routine activities/lifestyles vary significantly across different forms of disability. Conversely, these elements did not mediate the relationship between disability status and victimization.

DISABILITY STATUS AND VICTIMIZATION: AN EXAMINATION OF MEDIATING
FACTORS ON RISK

BY

TAYLOR LYNN GANN

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree
of
Master of Science
in the
Andrew Young School of Policy Studies
of
Georgia State University

GEORGIA STATE UNIVERSITY
2018

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Taylor Lynn Gann
2018

ACCEPTANCE

This thesis was prepared under the direction of the candidate's Thesis Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Masters in Criminal Justice and Criminology in the Andrew Young School of Policy Studies of Georgia State University.

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May, 2018

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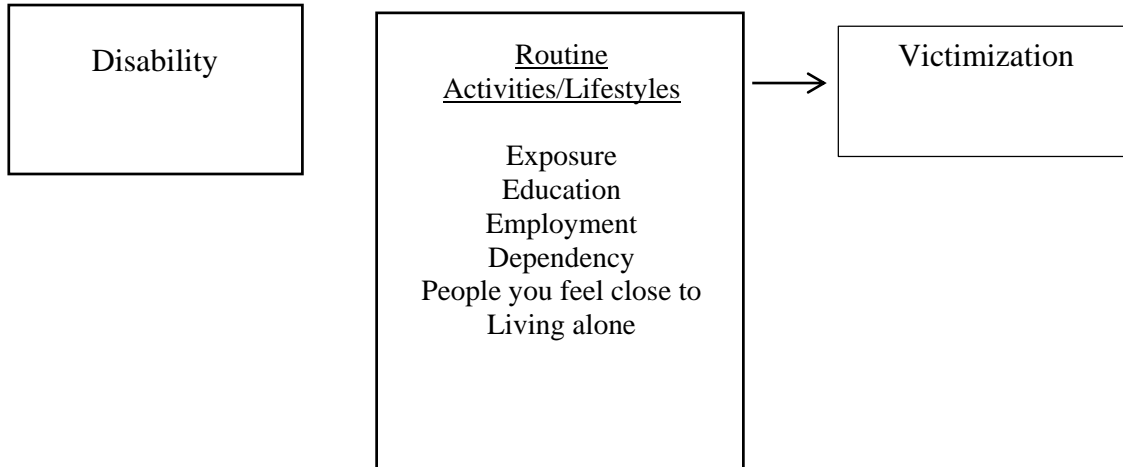
Lastly, I would like to acknowledge my family and friends for the emotional support I have received for the past couple of years. This was a long process, and without the daily phone calls to my mother, Melissa, the constant encouragement from my father, Gabriel, and the long nights with my best friend Michael, I would not have made it through this journey. Thank you all for everything you have given me. My confidence has grown over this journey, and you all have done nothing but love and support me through this process. Thank you for everything.

Table of Contents

Acknowledgments	iv
List of Figures	vi
Theoretical Pathway Diagram.....	vi
List of Tables	vii
Sample Description (n=6,460).....	vii
Bivariate Association of Victimization and Disability Type (n=6,460).....	viii
Mean Levels of the Exposure variable By Disability Status	ix
Association between Mediators and Disability Type	x
Binary Logistic Regression (n=6,460)	xi
1. Introduction	1
2. Literature Review	5
2.1 Routine Activities	5
2.2 Lifestyles Approach	7
2.3 Exposure	9
2.4 Target Suitability	11
2.5 Guardianship	14
2.6 Variations in Vulnerability and Guardianship by Disability Status	16
3. Current Study	18
3.1 Sample	22
3.2 Data Collection	23
4. Measures	24
4.1 Dependent Variable	24
4.2 Disability Status	24
4.3 Exposure	25
4.4 Target Suitability	25
4.5 Guardianship	26
4.6 Control Variables	27
5. Analysis	28
6. Results	29
6.1 Univariate	29
6.2 Bivariate	30
6.3 Multivariate Logistic Regression Models	32
7. Conclusion	34
7.1 Limitations	41
7.2 Closing Remarks	43
Appendix A: Non-Disabled Sample Description	44
Appendix B: Binary Logistic Regression Predicting Victimization (n=31,748).....	45
8. References	46
Vita	50

List of Figures

**Figure 1. Theoretical Pathway
Diagram**



List of Tables

Table 1. Sample Description (n= 6,460)

Variable	Mean	SD	Min	Max
<i>Independent Variables</i>				
Hearing	.405	.491	0	1
Physical	.485	.500	0	1
Intellectual	.110	.313	0	1
<i>Potential Mediators</i>				
Exposure	4.50	.206	0	8
<i>Target Suitability</i>				
No Formal Education	.018	.133	0	1
High school	.832	.374	0	1
Some College	.055	.228	0	1
College Degree	.095	.294	0	1
Employment	.282	.450	0	1
Dependency	.337	.737	0	3
<i>Guardianship</i>				
People You Feel Close To	.579	.494	0	1
Living Alone	.736	.441	0	1
<i>Controls</i>				
Age	59.99	16.65	16	80
Sex	.482	.500	0	1
Race	.042	.201	0	1
Married	.546	.498	0	1
SES	.349	.477	0	1
<i>Dependent Variable</i>				
Violent Victimization	Frequency		Percent	
No	6095		94.3	
Yes	365		5.7	

Table 2. Bivariate Association of Victimization and Disability Type (n =6,460)

Variable	Victimization		
	<u>No</u>	<u>Yes</u>	<u>Total</u>
Hearing	2514 96.2%	98 3.8%	2612 100%
Physical	2968 94.7%	167 5.3%	3135 100%
Intellectual	613 86.0%	100 14.0%	713 100%

*Note: $\chi^2=112.083$, $df=2$, $p<.000$ ****

Table 3. Mean Levels of the Exposure Variable By Disability Status

Mediator	Disability		
	Hearing	Physical	Intellectual
Exposure	4.755	4.244	4.656

Note: this one-way ANOVA denoted that at least two of the means for the exposure variable were different across the disability statuses at $p < .000^{***}$. A Bonferroni post-hoc adjustment demonstrated that the physically impaired were significantly ($p < .000$) different from both the hearing and intellectual statuses. However, the hearing and intellectual statuses were not different from one another.

Table 3a. Association between Mediators and Disability Type

Mediator	Disability						x ²
	Hearing		Physical		Intellectual		
	Yes	No	Yes	No	Yes	No	
No Formal Education	43 1.6%	2569 98.4%	59 1.9%	3076 98.1%	15 2.1%	698 97.9%	0.831
High School	2096 80.2%	516 19.9%	2711 86.5%	424 13.5%	566 79.4%	147 20.6%	47.746
Some College	151 5.8%	2461 94.2%	164 5.2%	2971 94.8%	39 5.5%	674 94.5%	0.832
College Degree	322 12.3%	2290 87.7%	201 6.4%	2934 93.6%	93 13%	620 87%	69.247
Employment	920 35.2%	1692 64.8%	518 16.5%	2617 83.5%	382 53.6%	331 46.4%	501.776
People You Feel Close To	1628 62.3%	984 37.7%	1738 55.4%	1397 44.6%	372 52.2%	341 47.8%	38.377
Dependency	76 2.9%	2536 97.1%	1195 38.1%	1940 61.9%	18 2.5%	695 97.5%	1265.378
Living Alone	2010 77%	602 23%	2177 69.4%	958 30.6%	568 79.7%	145 20.3%	56.507

Note: all disability statuses were significantly associated with the proposed mediators at $p < .000^{***}$ (except for the no formal and some college education mediators).

**Table 4. Binary Logistic Regression
(n=6,460)**

Variables	Model 1			Model 2		
	b	SE	OR	b	SE	OR
<i>Independent Variables</i>						
Physical	.371*	.137	1.449	.354*	.150	1.425
Intellectual	.145	.170	1.156	.188	.171	1.207
<i>Potential Mediators</i>						
Exposure		-		.052	.029	1.053
<i>Target Suitability</i>						
No Formal Education		-			-	
High school		-		.959	.598	2.610
Some College		-		1.354*	.626	3.872
College Degree		-		1.141	.618	3.129
Employment		-		.153	.129	1.165
Dependency		-		.092	.082	1.097
<i>Guardianship</i>						
People You Feel Close To		-		-.095	.116	.909
Living Alone		-		-.483**	.160	.617
<i>Controls</i>						
Age	-.042***	.004	.959	-.044***	.004	.957
Sex	.181	.114	1.198	.181	.115	1.199
Race	.363	.209	1.437	.343	.211	1.409
Married	-6.76***	.126	.508	-.468**	.154	.626
SES	.536	.119	1.710	.573***	.122	1.774

Note: *p<.05, **p<.010, ***p<.000. Model 1 only includes the independent variables and controls. Model 2 includes all variables in the equation.

1. Introduction

With current estimates of the world's population that suffers from a disability between 15 and 19 percent (Emerson & Roulstone, 2014), the demand for research examining this population in general, and their victimization experiences in particular is growing (Petersilia, 2001). Researchers assessing risk have indicated that individuals with disabilities are approximately two times more likely to experience some form of personal crime (Fisher, Moskowitz, & Hodapp, 2012; Hershkowitz, Lamb, & Horowitz, 2007; McGee, 2015; Nettelbeck & Wilson, 2002; Turner, Vanderminden, Finkelhor, Hamby, & Shattuck, 2011). In order to better understand this substantial increase in victimization, research regarding potential predictors of risk unique to the disabled need to be investigated. In addition, some forms of disability (i.e. sensory impairments) have also been neglected within the victimization literature (Hughes et al., 2012). The purpose of this research is to investigate the unique factors associated with different forms of disability, and how these factors may impact victimization of this population, drawing on a routine activities/lifestyles framework.

Disability is an umbrella term for an array of limitations and impairments (Emerson & Roulstone, 2014; Turner et al., 2011). This terminology incorporates several definitions for constrained functioning such as physical limitations (i.e. using a wheelchair), sensory impairments (i.e. deafness), and neurological deficits (i.e. autism) (Sullivan, 2009). For the purposes of this study, disability is understood as the interaction between an individual's impairments, whether those are structural or neurological, and their present environment (Howe, 2010). That is, disability is not only the internal workings of an individual, but also the external aspects that affect social and environmental contact. Because previous literature has incorporated a wide range of definitions for the term disability (Sobsey, 2014), this study will use several

definitions of disability status in order to explore variations in victimization risk. With this conceptualization, several dimensions of disability can be investigated through a theoretical lens.

Employing a routine activities approach, researchers have sought to examine the factors associated with disability that may contribute to an elevated risk for victimization (Sin et al., 2009; Hollis-Peel, Reynald, & Welsh, 2012; Emerson & Roulstone, 2014). In this body of research, it has been shown that variations in personal characteristics such as educational attainment, living situation, employment, dependency on others for daily living (Krnjacki et al., 2015) and deficits in protective networks (Turner et al., 2011) are significant contributors to victimization for individuals with disabilities (See Figure 1 for pathway diagram). For example, the severity of a disability may influence the dependency on others for assistance with daily tasks and necessary protection from potential offenders (Fisher et al., 2012). Higher levels of dependency may lead to increased caregiver burden, thereby elevating the risk of victimization (Carretero et al., 2009; Nettlebeck & Wilson, 2002). Other individual-level predictors, such as living arrangements, have been shown to be significant contributors as well (Fisher et al., 2012). Further, Wilson and Brewer (1992) found that disabled individuals who live alone or with incapable guardians are exposed to greater risk of victimization. Moreover, disabled individuals with lower educational achievement have demonstrated higher odds of victimization as compared to their non-disabled counterparts (Doren et al., 1996; Fisher et al., 2012).

Researchers exploring victimization risk have found that individuals with disabilities experience higher rates of victimization compared to their non-disabled counterparts. For example, Krnjacki and colleagues (2015) concluded that the prevalence of violence, both physical and psychological, against disabled individuals was higher than their non-disabled counterparts. Approximately 16% of the adult population within the U.K. possesses some form

of disability (Department for Disability Issues, 2012), and these individuals are at a higher risk of victimization than those without disabilities (Sin et al., 2009). In addition, recent estimates have found that 71% of people with disabilities in the U.K. had experienced some form of victimization or discrimination (Department for Disability Issues, 2012). Of this number, 22% of these disabled individuals have been victims of some form of physical violence. Further, researchers have examined the relationship between disability and victimization and have indicated that individuals with disabilities have higher rates of victimization across several facets of disability (i.e. intellectual, sensory, and physical disability) (Fisher et al., 2012; Hughes et al., 2012; Olofsson et al., 2015; Schenkel et al., 2014; Turner et al., 2011). In particular, Turner and colleagues (2011) compared several forms of disability and found that every form of disability was significantly associated with higher risk of victimization than their non-disabled counterparts. However, there are types of impairment that have been overlooked within the victimization-disability scholarship. In particular, there is a scarcity of studies of violence against individuals with sensory disabilities (Hughes et al., 2012). Although the sensory-impaired have been shown to experience lower levels of both physical and social functioning (Resnick, Fries, & Verbrugge., 1997), research regarding this population's victimization is limited. Thus, in addition to exploring risk factors for the victimization of the disabled, this study will also compare the sensory-impaired to an array of other disability statuses.

Although it has been found that individuals with disabilities experience higher rates of victimization than the non-disabled, explanations regarding the variation in risk across different disability statuses have been understudied (Mikton & Shakespeare, 2014). In one recent study, Kim and Lee (2016) sought to examine the link between differences in disability status and increased risk of personal victimization. Analyses indicated that individual and environmental

level factors may play a role in reducing or increasing potential risk. In particular, lower educational achievement, satisfaction with the number of friends in their peer network, and difficulties with activities of daily living affect the risk of victimization.

Complementing these individual-level approaches to victimization, environmental factors such as protective peer networks may reduce the probability of victimization among the disabled (Turner et al., 2011). According to the previous literature, guardianship has demonstrated a negative effect on victimization (Hollis-Peel et al., 2012). Further, individuals with stronger attachments and larger peer networks are less likely to experience victimization than those with smaller, uncommitted groups (Schreck & Fisher, 2004; Tillyer et al., 2011). Given these associations, a deficit in guardianship may be a key predictor of victimization among the disabled.

This study aims to further explore the risk factors for victimization among the disabled. In order to examine the prevalence of violent victimization across different forms of disability, this study will be employing data from the Life Opportunities Survey (LOS) collected within the U.K. This survey was developed in order to compare the experiences of the disabled with their non-disabled counterparts (Howe, 2010). As part of the primary data collection effort, the LOS gathered information pertaining to varying forms of disability, as well as information relevant to victimization, vulnerability characteristics, and guardianship factors that will be essential for the analysis of victimization among the disabled population. Secondary analyses of these factors may provide insight on how characteristics unique to each form of disability may play a role in victimization risk. Moreover, this study aims to understand how these factors may influence risk for overlooked populations (i.e. the sensory-impaired) and may further our understanding as to why there is variation in victimization risk among different disability statuses.

2. Literature Review

2.1 Routine Activities Theory

In their seminal work, Cohen and Felson (1979) developed what is known as Routine Activities Theory. According to this theory, “the structure of such [routine] activities influences criminal opportunity and therefore affects trends in a class of crimes we refer to as *direct-contact predatory* violations.” (pp.589). These “direct predatory violations” are illegal acts in which an offender intentionally harms or intends to harm a victim or their property. Cohen and Felson (1979) argue that the likelihood of an offender perpetrating these predatory acts is dependent on the intersection in space and time between three key concepts: (1) a motivated offender, (2) a suitable target, and (3) deficits in capable guardianship. A motivated offender is characterized as an individual who possesses both the willingness and ability to carry out a crime. Routine activities theory proposes that motivated offenders target suitable individuals based off of their value, visibility, and access to the offender. Value can be attributed to a material or symbolic possession and can vary across different groups (Cohen & Felson, 1979). Once an offender has access to a suitable target with perceived value, the presence of a capable guardian can affect the outcome of the criminal event. Therefore, the more protective and typically larger a supportive network is, the attractiveness of the target diminishes (Hollis-Peel et al., 2012). Cohen and Felson (1979) address this decrease in potential risk by proposing that an absence of one of the aforementioned elements surrounding routine activities may be sufficient in preventing predatory crime.

Cohen and Felson (1979) take routine activities a step further and state that not only does the spatio-temporal intersection of motivated offenders, a suitable target, and a lack of capable guardians affect crime, but technology and organization of community structure also play an

important role. Further, technological advancements such as “the automobile, small power tools, hunting weapons, highways, telephones, etc.” (pp. 591) enable offenders to effectively carry out criminal activity. New technology aids offenders in carrying out criminal acts, but inversely assists capable guardians in defending suitable targets. For example, “protective tools” such as weapons can be used in order to overcome an offender. In particular, guns have demonstrated a significant negative effects on the victimization of suitable targets (Tewksbury & Mustaine, 2003).

To test the assertion that routine activities are related to patterns in crime, Cohen and Felson (1979) define routine activities as activities that may occur at home, at jobs away from the home, and in other activities outside of the home. It is argued that shifts in routine activities, after World War II, have moved away from the first category and more toward the second and third, increasing non-household activities. With these shifts, Cohen and Felson (1979) operationalize target suitability by examining the worth of movable valuables such as automobiles and telephones, whether or not an individual engages more in peer activities or familial activities, marital status, age, and the major activities in which the individual is involved (i.e. in school, unemployed, unable to work, etc.). In addition to personal characteristics of target suitability, females entering the work force and college institutions were examined. The migration of women into college was examined because more women were leaving their homes “unattended”, and therefore decreasing the guardianship of their residence.

Based on results from time-series analyses between the years of 1947-1974, Cohen and Felson (1979) suggest positive relationships between changes in house-hold activities and shifts in the official crime rates. That is, across the five official crime rates measured (i.e. forcible rape, aggravated assault, robbery, burglary, and homicide) dispersion from the households due to

changes in social trends correlated with increased risk of personal victimization and property theft. Therefore, routine activities may increase the opportunity for illegal activity to occur.

Research over the past three decades has continued to support the efficacy of routine activities at explaining victimization (Bones, 2013; Fisher et al., 2012; Hoyt et al., 1999). For example, Tillyer and colleagues (2011) tested the significance of guardianship and vulnerability characteristics among adolescents. They found that perceived vulnerability increased the risk of violent victimization, while higher levels of guardianship (i.e. attachment) served as a protective factor that deterred violent crime. Further evaluations of the theory have demonstrated similar findings (Schreck & Fisher, 2004; Spano & Nagy, 2005), thus marking the routine activities approach as one of the central theories of victimization.

2.2 Lifestyles Approach

Paralleling Cohen and Felson, Hindelang, Gottfredson, and Garofalo (1978) developed a victimization model that asserts that the likelihood of “personal victimization depends heavily on the concept of *lifestyles*” (pp. 241). “Lifestyles” refer to activity patterns such as going to work, attending school, and engaging in leisure activities. This model proposes that role expectations and social constraints are aspects of the social structure to which individuals must adapt in order to be considered functioning members of society. These adaptations affect lifestyle choices and therefore influence exposure to personal victimization (Hindelang et al., 1978).

Personal lifestyles vary depending on demographic characteristics (Hindelang et al., 1978). Several significant demographic attributes include: marital status, education, and occupation. These individual characteristics do not cause role expectations and social constraints, but rather influence potential lifestyles (Hindelang et al., 1978). Role expectations are the cultural norms associated with the status of an individual that predict behavior over time. These

expectations are central in defining “preferred behaviors” (pp. 242) and influence decisions regarding personal lifestyle. For example, married persons are less likely to engage in activities outside the home as compared to unmarried individuals (Hindelang et al., 1978). Generally, married couples spend more time at home and typically have more lifestyle stability. These expectations, along with social constraints, limit the daily activities in which individuals may engage.

Social constraints limit particular daily activities through economic arrangements, familial bonds, educational opportunities, and legal orders (Hindelang et al., 1978). For example, shifts in family structure (i.e. the increased probabilities of divorce or separated families) in the United States have impacted the decisions family members make regarding lifestyle. Moreover, parents must undertake historically shared responsibilities such as child supervision with varying degrees of support. Adaptation to these social constraints and role expectations is critical in the development of a person’s lifestyle. Adaptation occurs when individuals learn self-sufficient skills and embrace attitudes that allow these individuals to operate within imposed social constraints. Learned attitudes, such as fear of crime, result in predictive behavioral patterns that shape the routine activities of an individual (Hindelang et al., 1978).

Once these predictive patterns are in place, lifestyles begin to dictate decisions (Hindelang et al., 1978). Variations in lifestyles may increase the probability of intersecting with a particular person at a given time and space. Stated differently, variation in lifestyles can increase the risk of exposure to victimization (Hindelang et al., 1978). Although this exposure to high risk situations is direct, increased exposure can also be attributed to associations between individuals (Hindelang et al., 1978). These indirect associations refer to established relationships between individuals with similar lifestyles. For example, Hindelang and colleagues (1978)

propose that the amount of time an individual spends away from family and other supportive social networks varies as a function of lifestyle. Further, individuals who spend more time away from home and engage less in family activities can increase the exposure to victimization. This increased risk can be attributed to a lack of capable guardians (Cohen & Felson, 1979). The probability of theft also increases with decreased levels of family involvement (Hindelang et al., 1978). Consequently, both positive and negative relationships between individuals (i.e. an individual and their caregiver) impact the risk of exposure to possible victimization.

In addition to the influence of familial bonds, variations in the desirability and vulnerability of an individual further increase the risk for personal victimization (Hindelang et al., 1978). Moreover, the convenience and suitability of the victim increases the probability of victimization. A target is “convenient” and “suitable” when they are more visible to the offender and more vulnerable (Cohen & Felson, 1979; Hindelang et al., 1978). Therefore, variations in demographic characteristics influence both routine activities and lifestyle choices, which in turn influence the intersection between the offender and the victim.

2.3 Exposure

Cohen and Felson (1969) assert that the intersection between a motivated offender, a suitable target, and an absence in guardianship increase the risk of victimization. In accordance with this macro theory, when societal structures increase the exposure of suitable targets to motivated offenders, the risk of victimization increases. Increased exposure is attributed to changes in routine patterns in arenas such as work, school, and leisure activities (Cohen & Felson, 1969). These routine patterns may influence time spent away from home or the presence of capable guardians, and thus may increase exposure to offenders. Hindelang and colleagues (1978) attribute these changes in activity patterns to personal characteristics. These personal

characteristics (i.e. age, race, sex, marital status, etc.) influence the formulation of lifestyles. Lifestyle patterns have been documented to influence potential exposure to offenders (Turanovic & Pratt, 2014).

Since the development of the routine activities/lifestyle approaches, several studies have sought to test the relationship between exposure and increases in victimization risk. For example, Sampson and Wooldredge (1987) examined the link between exposure and predatory victimization. Employing data from the British Crime Survey, The authors found that individuals who lived alone, were single, and spent their leisure time away from the home were more likely to experience victimization. This coincides with Hindelang and colleagues' (1978) assertion that individuals who are single may possess unstable lifestyles (i.e. going out at night more than married couples), and thus increase their exposure to victimization. In addition to Sampson and Wooldredge's findings, Kennedy and Forde (1990) further examined the influence of exposure for violent victimization. Utilizing data from Canadian Urban Victimization Survey, the authors found a positive correlation between increased exposure to offenders (i.e. possessing certain lifestyles that lead to more time spent away from the home) and increases in violent victimization.

Although the aforementioned studies examined "riskier" lifestyles, one study sought to explore the effects of exposure on victimization within delimited arenas of life (i.e. work and school) (Wooldredge, Cullen, & Latessa, 1992). Analyzing data collected from the University of Cincinnati on full-time faculty members, Wooldredge and colleagues (1992) found that exposure significantly increased the risk of personal victimization. That is, participants who spend more time on campus after hours, walk alone, and socialize outside of class were more likely to

experience personal victimization. Overall, exposure has been demonstrated to significantly impact risk for victimization.

Although there does not appear to be a direct test of exposure to offenders among the disabled, some studies have highlighted the importance of exposure to violence among adolescent peers (Baumeister et al., 2008; Blake, Lund, Zhou, Kowk, & Benz, 2012; Sullivan, 2009). For example, Blake and colleagues (2012) examined the relationship between bullying victimization and repeat victimization among students with disabilities. Analysis of two longitudinal studies centered around special education found higher rates of bully victimization among adolescents with disabilities. Moreover, the authors attributed this finding to the exposure to bullies within schools. Baumeister and colleagues (2008) found a significant relationship between “exposure” to negative peers, and increased risk of victimization. That is, being surrounded and rejected by peers was associated with maltreatment among disabled students.

2.4 Target Suitability

According to Cohen and Felson (1979), the intersection between a motivated offender and a suitable target increases the probability of victimization. Target suitability has been defined as valuables, either material or symbolic, characterized by easy access, physical visibility, and easy transport (i.e. light weight items such as cellphones). However, Finkelhor and Asdigian (1996) reconceptualized target suitability in order to incorporate characteristics unique to the individual. In their reconceptualization, Finkelhor & Asdigian (1996) broke target suitability into three distinct categories. These categories are known as target vulnerability, target gratifiability, and target antagonism. First, target vulnerability is characterized by attributes of an individual that increase risk due to their inability to deter crime. Such characteristics include psychological problems and physical limitations (Finkelhor & Asdigian, 1996). Second, target gratifiability is

conceptualized as characteristics, skills, or objects that an individual possesses that offenders may find desirable. This definition is similar to the original conceptualization of routine activities theory in that “possessions” could range from a material object to a symbolic characteristic of the individual (Cohen & Felson, 1979). Third, target antagonism refers to characteristics that provoke negative emotions such as anger and jealousy that can lead to destructive impulses (Finkelhor & Asdigian, 1996). For example, burden from caring for the disabled may lead to stress which increases the likelihood of parental or caregiver assault (Carretero, Garces, & Sanjose, 2009). Empirical testing of these reconceptualized ideas concluded that target congruent factors (i.e. target vulnerability, gratifiability, and antagonism) had significant effects on different types of assault (i.e. nonfamily, sexual, and parental) (Finkelhor & Asdigian, 1996). In particular, individuals with psychological problems as well as individuals with a limiting condition (i.e. a disability) were more likely to be victimized.

Further testing of target vulnerability has yielded similar results (Fisher et al., 2012). For example, Fisher and colleagues (2012) examined the target suitability of children with disabilities by comparing their vulnerability characteristics to children without disabilities. These vulnerability characteristics included: educational attainment, number of friends, and living arrangements (i.e. living alone or living with a parent/care giver). Analysis of these variables demonstrated that having an intellectual disability, lower educational attainment (i.e. lower than “some college”), fewer numbers of friends, and living outside of the home increased the probability of victimization (Fisher et al., 2012). That is, children with disabilities scored lower on these variables than their non-disabled counterparts and this, in part, explained the association between disability and victimization.

Similarly, Turner and colleagues (2011) assessed the effects of target vulnerability on victimization risk across both the disabled and non-disabled. Employing data from the National Survey of Children's Exposure to Violence, the authors explored the likelihood of different types of victimization (bullying, childhood physical abuse, and property crime among two groups), among two groups (i.e. disability versus no disability and disability versus other forms of disability). Vulnerability characteristics for this model were specified as possessing a physical disability, internalizing disorders (i.e. depression), learning disabilities such as ADD/ADHD, and possessing a developmental disability. Analysis of these characteristics provided further support for the increased probability of victimization among vulnerable individuals. Moreover, individuals with physical disabilities experienced increased levels of maltreatment and property crime; internalizing disorders were significant risk factors for all types of victimizations; individuals with ADD/ADHD were more likely to be mistreated by peers and caregivers, and the developmentally disabled were significantly more likely to experience property theft than any other group. Thus, individuals with disability are perceived as vulnerable and are victimized at higher rates, and risk varies across disability status.

Utilizing the National Longitudinal Study of Adolescent Health (Add Health), Bones (2013) also examined the relationship between vulnerability traits (i.e. possessing a disability and gender) and violent victimization among adults. Incorporating both routine activities and lifestyle approaches, Bones (2013) measured disability as a limiting condition on daily activities, and whether or not an individual possessed a "visible signifier of disability". These signifiers included the use of a "brace, cane, wheelchair, or other device because of a disability." (pp. 736). As for the dependent variables, violent victimization was defined as having a weapon pulled on the individual, being hit, slapped, kicked, or choked. Analysis of these variables demonstrated

that increased victimization can be attributed to visible signifiers of disability. This evidence provides further support for the idea that motivated offenders are more likely to select individuals that they perceive as vulnerable (Bones, 2013).

2.5 Guardianship

In addition to target vulnerability, Routine activities theory maintains that the probability of victimization can be influenced by the presence of capable guardians (Cohen & Felson, 1979). Guardianship can deter potential offenders from targeting vulnerable individuals. Protective networks can take on a variety of different forms. For example, police action during a criminal event can significantly decrease the likelihood of victimization. In addition, attachments to others through marriage, family, and participation in institutions (i.e. church and school programs) can increase the size and quality of capable guardians (Tillyer et al., 2011).

In testing this aspect of routine activities, Tillyer and colleagues (2011) examined the impact of guardianship on violent victimization. Guardianship was defined by both attachment to parents, and the direct control of delinquent behavior (i.e. guardians with more control over behavior are more capable of protecting individuals). Definitions for violent victimization included being: hit, stabbed, shot, cut, or getting “jumped”. Analysis of Add Health data demonstrated that guardianship had a significant negative effect on violent victimization. Moreover, the odds of victimization increased for individuals with lower levels of parental attachment (1.30 OR) (Tillyer et al., 2011). In contrast, the direct control of an individual’s behavior had a positive effect on victimization. Stated differently, the more control a guardian had over an individual, the more likely that individual was to be violently victimized (1.60 higher odds of victimization). One potential explanation for this surprising finding is that the control from over-protective guardians may affect an individual’s ability to deter victimization.

That is, reliance on guardians for protection may leave individuals at a disadvantage when developing self-protective behaviors.

Similarly, Schreck and Fisher (2004) found a significant association between levels of guardianship and victimization risk. Within their study, the authors (2004) examined the relationship between guardianship (parental attachment versus peer-group associations) and violent victimization (i.e. individuals being hit, stabbed, jumped, etc.). Guardianship was split into two distinct categories: family context and peer-group associations. Family context measured parents' attitudes toward their children, how close children were to their parents, and how much control parents had over their child's decisions. These measures were used to capture how much time and authority parents maintained over their children (i.e. more affectionate parents spend more time and are more willing to defend their children). In contrast, peer-group associations were measured as how often children spent time with their peers, the delinquency among peers (i.e. smoking, drinking, skipping school, and risky activities), and how much these peers cared about individuals (Schreck & Fisher, 2004). Analysis of Add Health data demonstrated that family context, parental attachment, and control of a child's decisions all had a significant effect on victimization (Schreck & Fisher, 2004). Stated differently, the more control and positive attitudes a parent had toward their child, the less likely that child were to be violently victimized. However, peer-group association demonstrated a completely different relationship. The more time an adolescent spent with friends, regardless of how much their peers cared about them, the more likely adolescents were violently victimized (Schreck & Fisher, 2004). One potential explanation of this relationship can be attributed to the delinquency of the peer-group. More delinquent peer-groups can lead to increased exposure to violence.

2.6 Variation in Vulnerability and Guardianship by Disability Status

As previously mentioned, disability is a general term that encompasses a vast range of impairments and conditions. These impairments also vary based on severity of the condition and how this disability affects activities of daily living (ADLs). For example, individuals with intellectual disabilities (i.e. autism spectrum disorders and Down syndrome) are typically more reliant on caregivers and possess lower educational attainment (Sobsey, 2014). Further, the severity of intellectual functioning may affect not only ADLs, but may also impede communication efforts and the development of social skills (Carvill, 2001). The intellectually disabled can also possess coexisting impairments that may increase the vulnerability of the individual, such as deficits in interpersonal skills and negative externalizing behaviors attributed to particular disabilities (Carvill, 2001). The severity of impairment and the comorbidity of conditions enhance the attractiveness of an individual and thus may increase their risk of victimization. Recent research on variation in victimization rates among the disabled has evidenced an increase in the prevalence of violence against the intellectually disabled as compared to other forms of disability (Hughes et al., 2011; Kim & Lee, 2016). This differentiation in risk may, in part, be caused by both perceived vulnerability and varying levels of guardianship.

Similarly, individuals with learning disabilities (i.e. Dyslexia, ADHD, and Dyspraxia) may be more attractive targets than other forms of disability (Wymbs, Dawson, Suhr, Bunford, & Gidycz, 2017). Although they may not be physically perceived as more vulnerable than those with intellectual disabilities, individuals with learning disorders may lack social competence. Deficits in social skills may lead to the inability of an individual to develop self-protective skills that deter violence (Turner et al., 2011). Similarly, individuals with learning disabilities typically

have lower rates of employment and usually reside with others (Murray, 2003). These attributes may affect the perceived vulnerability of a target, regardless of their physical appearance. Due to maladaptive behavior inherent in some individuals with learning disabilities, persons with these impairments may possess fewer friends. Thus, this may increase their likelihood of victimization according to routine activities (Baumeister et al., 2008).

In contrast, individuals with physical impairments (i.e. having difficulties with mobility or requiring special equipment to move) experience higher levels of acceptance among peers (Weiserbs & Gottlieb, 2000). Although the physically impaired experience lower victimization rates as compared to both the intellectually and learning disabled, the physically impaired do possess an increased level of risk as compared to their non-disabled counterparts (Hughes et al., 2012). This could be due to the perceived vulnerability of the individual. For example, a recent study by Bones (2013) found that disability status alone was not a predictor of violence, rather a visible signifier of disability was the most crucial element in the victimization of the disabled.

Although there is evidence to suggest that individuals with sensory disabilities possess lower levels of social and physical functioning compared to their non-disabled counterparts (Cambra, 1996), this population has been widely overlooked in the victimization literature. The sensory-impaired may be at risk in several ways. First, researchers have demonstrated that individuals with hearing impairments are limited in ADLs and may require assistance for daily tasks (Resnick et al., 1997). This reliance on others may influence the attractiveness of the target and could increase potential risk when guardians are absent. In addition, Weinstein and Ventry (1982) found that hearing impairment was significantly associated with social isolation from the community. As noted by Spano and Nagy (2005), social isolation from the community can lead to an increase in the risk of violent victimization. This can be attributed to both the absence of

capable guardians and the perceived vulnerability that is associated with isolation. Because there is little research surrounding the victimization of the sensory-impaired, this study intends to provide insight into the risk of this population.

3. Current Study

In sum, research conducted on disabilities has demonstrated a significant association between disability status and increased risk of victimization (Baumeister et al., 2008; Bones, 2013; Finkelhor & Asdigian, 1996; Hughes et al., 2011; Hughes et al., 2012; Jones et al., 2012; Khalifeh et al., 2013; Kim & Lee, 2016; Krnjacki et al., 2016; Mikton & Shakespeare, 2014; Perreault, 2009; Turner et al., 2011). Moreover, several studies have highlighted varying levels of victimization between different types of disability (Hughes et al., 2012; Khalifeh et al., 2013; Olofsson et al., 2015; Turner et al., 2011). Research on victimization risk among the disabled has uncovered several individual and social factors that serve as predictors of victimization risk. (Kim & Lee, 2016). Although risk factors that influence victimization have been identified, research on how these factors vary across disability status and the effects these elements have on victimization across differing forms of disability has been widely overlooked.

Although researchers have indicated varying levels of victimization risk associated with different forms of disability (Turner et al., 2011), sensory impairment (i.e. hearing loss) has been understudied (Hughes et al., 2012; Olofsson et al., 2015). Research regarding this population can be essential in comparing different forms of disability and their effects on victimization (Mikton & Shakespeare, 2014). Further, several studies have demonstrated that sensory impairment may affect the quality of life for those with this form of disability (Fischer et al., 2009). Lower levels of quality of life include limited activities of daily living (ADLs) and inhibited social and physical functioning (Carvill, 2001; Resnick et al., 1997; Weinstein & Ventry, 1982). These

limitations can lead to increased social isolation (Weinstein & Ventry, 1982) which many increase the risk of victimization for this population (Spano & Nagy, 2005). Due to the potential risk among this understudied population, this study will be incorporating this group into the analysis.

Along with the variation in victimization risk for different disability statuses, researchers have indicated that factors associated with target suitability (i.e. educational attainment, dependency on caregivers, and employment) and guardianship (i.e. supportive peer networks and residing alone) may also influence potential risk (Doren et al., 1996; Kim & Lee, 2016; Perreault, 2009; Sobsey, 2014; Tillyer et al., 2011). For example, Doren and colleagues (1996) found that lower educational achievement significantly increased the risk of victimization (See also Wilson & Brewer, 1992). However, when disability status and lower educational attainment were analyzed together, the risk of victimization dramatically increased. Further, different forms of disability may affect suitability characteristics more or less depending on the type of disability. In addition to target suitability, guardianship has been shown to influence victimization risk (Kim & Lee, 2016; Sobsey, 2014; Turner et al., 2011). Moreover, these factors may also vary depending on disability status. For example, Turner and colleagues (2011) suggested that individuals with intellectual disabilities may experience deficits in supportive networks due to social incompetence. However, guardianship among other forms of disability may differ due to acceptance from peers (Weiserbs & Gottlieb, 2000) and perceived dependency on others (Cambra, 1996).

Given the aforementioned variance in victimization risk for different disability types (Hughes et al., 2012; Kahlifeh et al., 2013; Olofsson et al., 2015; Turner et al., 2011), I will examine risk factors drawn from the routine activities/lifestyles approach that may mediate the

association between disability status and victimization experiences. Using secondary data from the Life Opportunities Survey (LOS) collected in the U.K., I will evaluate the following hypotheses:

Hypothesis 1: Victimization will vary for different forms of disability.

1a: Given lower rates of educational attainment and increased dependency among the intellectually disabled (Hughes et al., 2012), this group may experience higher rates of victimization than both the sensory and physically impaired.

Hypothesis 2: Characteristics of target suitability will be associated with different forms of disability.

2a: For example, depending on severity, the intellectually disabled may be more dependent on caregivers than the hearing or physically impaired. Moreover, due to deficits in interpersonal skills (Baumeister et al., 2008), individuals with intellectual disabilities may experience greater difficulty securing employment compared to both the hearing and physically impaired.

2b: The same logic can be applied to educational attainment as well. That is, the intellectually disabled may possess lower levels of academic achievement due to maladjustment within school (i.e. acceptance of disability among peers, effective educational programs that target individual needs, etc.) (Olofsson et al., 2015).

Hypothesis 3: Guardianship will be associated with different forms of disability.

3a: For example, peers are generally more accepting of individuals with physical impairments as opposed to other disabilities (Weiserbs & Gottlieb, 2000). Further, Cambra (1996) found that the deaf are not perceived as significantly disabled when compared to intellectually disabled peers (although this group was still perceived as more “unlikeable” and solitary compared to those

with other disabilities). Thus, individuals with intellectual disabilities may experience difficulties in developing relationships with others that may serve as protective factors against victimization.

3b: In addition, because the intellectually disabled may require more assistance from caregivers (Hughes et al., 2012), they may be less likely to live alone compared to the hearing and physically impaired. Living with others may serve as a protective factor for risk as well.

Hypothesis 4: The impact of disability status on victimization will be mediated by vulnerability characteristics, and varying levels of guardianship.

4a: First, the intellectually disabled may rely more heavily on others for assistance compared to other forms of disability. The increased dependency for this particular group may influence their ability to protect themselves, and thus increase their risk of victimization. In addition, due to deficits in interpersonal skills, the intellectually disabled may experience difficulties in securing employment, which may lead to higher victimization risk. Second, although they may be less likely to rely on others in comparison, the physically impaired may still be more dependent on others for ADLs, which may increase their risk. However, the physically disabled may possess higher levels of academic achievement given that their impairment may not necessarily limit cognitive functioning. This may insulate victimization risk for this group. Lastly, the hearing impaired may also experience some dependency on others for help with interpretation and communication. However, this group may not require as much assistance with daily tasks compared to both the physically and intellectually disabled. In addition, the hearing impaired may face barriers to employment. However, this group may find it easier to access employment opportunities than the other disability statuses given the cognitive and physical limitations associated with other impairments.

4b: Levels of guardianship may vary for each disability status. For example, the intellectually impaired may experience difficulties in fostering and maintain friendships given deficits in interpersonal skills. These deficits may also impact whether they live alone as they may require a guardian to assist them in daily activities, and communicating with others. Similarly, the hearing impaired may have difficulties maintaining peer relationships due to barriers in communication. However, these individuals may be more independent than the intellectually disabled, and thus may reside alone more often. For the physically impaired, social acceptance of this group (Weiserbs & Gottlieb, 2000) may aid in maintaining relationships with peers. In addition, given advancements in technology, individuals with physical impairments may be more likely to reside alone.

3.1 Sample

The Life Opportunities Survey (LOS) was a data collection effort administered by the Office of National Statistics in order to explore the everyday activities of both the disabled and non-disabled within the U.K. (Dawe, 2011). The LOS draws their data from a household sample that was selected using a small users Postcode File. This allowed researchers to exclude addresses that may serve solely as businesses. The sample design for this survey incorporated a single-staged, unclustered sample of addresses (Dawe, 2011). During the first Wave, a total of 37,500 households were included for sampling. Of these households, the sample was stratified by the three countries that were involved in data collection: England, Scotland, and Wales. The sample was nationally representative of each country's population (Dawe, 2011). Ultimately, this study utilizes interviews solely from individuals with disabilities and thus the sample totaled to 6,460 participants¹. The response rate for all eligible households within the sample was 59%.

¹ The original sample (n=38,996) included all respondents whether they possessed a disability or not. The sample for this study (n=6,460) excludes all individuals that denoted no disability, as well as respondents under the age of 16.

3.2 Data Collection

Once the initial selection of households was complete, administrators proceeded to send advance letters to all potential households (Dawe, 2011). This letter detailed the purpose of the survey and emphasized the importance of each person's voluntary cooperation. After the advance letter and the corresponding leaflet containing information on the project were mailed to each household, a trained interviewer visited residents in order to conduct face-to-face interviews. Administrators of the LOS understood that varying forms of impairment may affect the interviewer's ability to survey participants and therefore they developed several materials to facilitate the interviewing process (Dawe, 2011). These supplements include: Braille cards for those with vision impairments who read Braille, large print advance notices, sign language interpreters provided upon request and each interviewer received disability awareness training. However, some individuals were excluded due to the severity of their impairments (Dawe, 2011).

The interviewing process consisted of a two-part questionnaire that examined the "participation of both disabled and non-disabled people in different areas of life," (Dawe, pp. 2, 2011). These arenas include education, employment, and leisure activities. In addition, the questionnaire examined the barriers that inhibit individuals from participating in the aforementioned areas. Thus, a detailed account of each individual's routine activities is captured within their communities. On average mean interview time was approximately 56 minutes (Dawe, 2011).

For each eligible household, interviewers attempted to collect data on all individuals aged 16 and older (Dawe, 2011). If participants were under the age of 16 or did not possess the capacity to answer questions without assistance, proxy information from a parental/guardian was

recorded. Although not all of the recorded proxy interviews were due to the aforementioned reasons, interviewers did attempt to return to the household to question those who were originally unavailable. In total, 2,950 proxy interviews were obtained for children aged 11 to 15. For the purposes of this study these proxies are omitted for analysis due to missing personal data on these respondents.

4. Measures

4.1 Dependent Variable

Victimization: The LOS measures several forms of criminal victimization. These include property theft, property damage, unlawful entry of the individual's home, and violence (Life Opportunities Survey, 2009). For the purposes of this study, victimization is measured as "violence or force used or threatened against" (pp. 115) the individual within the past 12 months. This variable is dichotomous where respondents who answered yes are coded as 1; no is coded 0.

4.2 Disability Status²

In order to evaluate differences across varying disability statuses, multiple forms of disability are dichotomized and measured for analysis. Sensory impairments are measured by asking respondents whether or not they possess any hearing difficulties or require a hearing aid. This variable also includes individuals who cannot hear at all (Life Opportunities Survey, 2009). This is measured as yes being 1 and no as 0. Physical impairments are measured by asking respondents whether or not they have difficulties moving or require special equipment for mobility support. This variable includes individuals who use wheelchairs as equipment. This

² Although researchers provided braille cards for those with vision impairments, the seeing impaired were excluded from this study. The exclusion of this group was attributed to the quality of the question pertaining to visual impairment in which respondents were asked, "Do you have any difficulty seeing, or wear glasses or contact lenses?" (Life Opportunities Survey, 2009, pp. 129). As this ambiguous survey item does not adequately gauge whether a respondent was blind, the visually impaired were excluded from analysis.

variable is dichotomous: yes is 1 and no is 0. Learning disabilities are measured as whether or not a respondent may have a condition that affects their educational attainment or workplace functioning (i.e. ADHD and Dyslexia). This variable is also dichotomous, with yes coded 1 and no coded 0. Intellectual disabilities, such as Down syndrome and Autism, are operationalized as whether or not the respondent possesses a developmental delay or some other nameless condition that affects their cognition. This dichotomy is coded as 1 is yes and 0 is no. Due to the small proportions of individuals that possess either learning or intellectual disabilities within the LOS, this study combines both measures of disability status in order to retain these individuals for analysis.

4.3 Exposure

Time Away From Home: In order to account for the potential influence exposure may have on victimization risk; a measure for exposure is incorporated into analysis. This variable is a sum of individuals who reported that within the last 12 months they have been involved in activities such as visiting friends, going on holiday, spending time with family, participating in charity or volunteer work, visiting a library or archive, going to museums or historic places of ³interest, going to the theatre or some other arts activity, and playing sports. These measures were coded as 1 for yes and 0 for no participation in the aforementioned leisure activities. This sum of activities is used in order to gauge lifestyle patterns that lead individuals to spend more time away from their homes. Prior research suggests that more time spent away from home and socializing with others influences exposure, and may increase victimization risk (Kennedy & Forde, 1990; Sampson & Wooldredge, 1987; Turanovic & Pratt, 2014; Wooldredge et al., 1992).

4.4 Target Suitability

Educational Attainment: Typically, individuals with disabilities achieve lower levels of educational attainment than their non-disabled counterparts (Kavanagh et al., 2013). Lower levels of educational attainment have been associated with increased risk of victimization (Wilson & Brewer, 1992). Educational attainment for this study is a series of dummy variables that consists of no formal qualifications, high school, and higher level education (i.e. some college or degree obtainment). “No formal qualifications” is excluded as the referent category.

Employment: Individuals with disabilities may experience impediments to employment (Krnjacki et al., 2015), and being employed requires an individual to be involved in activities outside the home which may increase the risk of intersecting with a motivated offender and thus may increase victimization risk (Cohen & Felson, 1979). Employment is measured as whether or not a respondent has done “any paid work in the 7 days ending in Sunday as either an employee or self-employed” (pp. 25), where 1 is for those who are employed, and 0 if not.

Dependency: Dependency on others for assistance with daily activities of living is incorporated in analysis. This measure consists of 3 separate survey items that ask whether respondents have any difficulty with tasks such as eating, dressing, and washing. If yes, these individuals are coded as 1. The three items were then summed to create an indicator of dependency. These items were utilized since they are vital for daily routines. That is, individuals that require assistance with simple tasks such as dressing and eating exemplify a specific level of dependency. As most individuals do not need assistance with these tasks, the decision to include these measures is logically sound.

4.5 Guardianship

People You Feel Close To: Prior research on guardianship demonstrates a significant association between peer networks and decreases in victimization (Tillyer et al., 2011). However,

individuals with disabilities may not possess extensive peer networks due to the type or severity of their disabilities (Martlew & Hodson, 1991). Thus one of the variables for guardianship is measured as the number of people a respondent feels close to and whom they can call upon when problems arise, where individuals with 6 or more friends are coded as 1, and those with fewer than 6 are coded as 0. Coding for this variable is attributed to the little variation between possessing 4 or less friends as opposed to 6. That is, there was no difference in having a variation of less than six friends in victimization risk. In addition, employing a measure for the number of people a respondent feels close to denotes the size of the peer network. Larger networks may further

Living Alone: In addition to social networks, whether an individual resides alone is included as a guardianship measure. Because many individuals with disabilities typically do not reside alone (Murray, 2003), this prevalence may influence risk. Thus, whether an individual lives alone or with others (i.e. family member, care worker, friends, etc.) is measured by household size. Respondents who stated that household size=1 live alone and is coded as 1. All other potential responses indicate living with others and are coded as 0.

4.6 Control Variables

Similar to previous research, variables such as age, sex, race, marital status, and SES are accounted for in analysis. SES is measured as whether or not a respondent is making “ends meet.” That is, given the monthly income of an individual’s household, is the household able to make ends meet (i.e. paying usual expenses such as rent/mortgage and other bills). This operationalization of socioeconomic status is used due to the absence of information regarding actual income. Moreover, any information regarding social status (i.e. lower class, middle class, etc.) is also absent. Thus, if a respondent does experience financial difficulty they are coded as 1.

As for the other variables: age is continuous (years since birth beginning at age 16), race is coded as 1 for non-whites (0 for whites), males are 1 and females 0, and married is 1 (all others are 0).

5. Analysis

Prior to analysis, procedures were performed to account for missing data on several variables. First, all cases under the age of 16 were excluded from analysis. This is due to the large amount of missing data for participants under 16, as there is little data for these cases. Next, due to a large amount of missing data for one of the independent variables (education was missing approximately 50 percent of data), a dummy missing indicator variable was created. For this indicator, all of the cases that were missing were coded as one. Then, for each missing case on the education variable, that case was replaced with the mode of the sample (high school). This method was necessary for the inclusion of this specific variable, since it had such a high degree of missingness. Then, a listwise deletion was conducted to exclude cases that were missing data on some of the independent and control variables. In particular, many of the independent variables (i.e. dependency, employment, people you feel close to, and living alone) were missing approximately .4% of data, while a couple of the controls (i.e. race and SES) were missing around .3% of data. This process was utilized, as the exclusion of less than 1 percent of the data is not detrimental for future analysis.

The first objective in this study was to examine violent victimization risk across several forms of disability. In order to document this variation, crosstabs with chi square statistics were utilized to demonstrate the bivariate association. Next, I estimated logistic regression models where victimization is the outcome, and disability type is the key independent variable. I also included control variables. These logit models were employed due to the categorical nature of the dependent variable. That is, logistic regression is important when the dependent variable

solely has two values. In addition, utilizing logistic regression allows for the estimation of the log odds for one of the binary responses across multiple, independent predictors. Similar to previous studies, this step in my analysis is aimed to demonstrate varying levels of victimization risk across individual disability statuses, while also extending the literature by incorporating a commonly neglected disability type: hearing disability.

The next aim of my study is to determine whether elements of target suitability, guardianship, and exposure mediate the effect of disability type on risk of violent victimization. First, I examined associations between disability type and the mediators using bivariate analyses. Next, I conducted a multivariate logistic regression analysis examining the impact of disability type, holding constant the theorized mediating variables. By comparing the coefficients from the regression without the mediators to that with the mediators, I was able to determine whether the effect of disability status declines, when I hold constant the theoretical mediating variables.

6. Results

6.1 Univariate

Table 1 shows the descriptive statistics for all variables included within the analysis. As shown in Table 1, 40% of the sample possessed a hearing disability, 49% had a physical impairment, and 11% possessed some form of learning or intellectual impairment. In addition, nearly half of the sample was male (48%), 75% of the respondents lived with at least one other person, and 96% of the sample was white. With regard to the dependent variable, approximately five percent of the sample experienced some form of violence or force used or threatened against them. Although this appears to be a relatively rare event, there may be variation by disability status that is masked by the overall average. In addition, bettering our understanding of the

victimization of the disabled is crucial in predicting future and recurrent victimization, a point I return to in the discussion section.

6.2 Bivariate

The next step in the analysis was to create a three by two contingency table to examine the association between disability type and experiencing violent victimization, in order to examine hypothesis 1. As shown in table 2, there is a significant association ($p < .000$) between type of disability and violent victimization. That is, for the hearing impaired, 3.8% reported having experienced some form of violent victimization. Interestingly, individuals with physical impairments and intellectual disabilities reported a 5.3% and a 14% past year prevalence of experiencing violent victimization, respectively. Although there appears to be a significant association between type of disability and victimization, it is not clear as to which form of disability is different from which other, based on the contingency table analysis.

In order to assess the differences across the varying forms of disability, a one-way ANOVA was conducted. According to this analysis, each type of disability was significantly different from each other using an alpha of .05 and a Bonferroni post hoc adjustment. Moreover, given the conservative nature of this post-hoc test and the rarity of the outcome, it is all the more impressive that the three groups were all significantly different from one another using this test. Although the ANOVA and post-hoc test establish the statistical differences between the aforementioned impairments, there is an important limitation to using this test, which must be noted. That is, due to the dichotomous nature of the dependent variable, the normal distribution assumption of ANOVA was violated. Importantly, this assumption is not violated in the crosstab presented above nor in the multivariate analysis that follows.

To test for differences in the mediators across disability statuses (hypotheses 2 and 3), crosstabs for categorical mediators and a one-way ANOVA for the continuous mediator were performed. Shown in Table 3 and 3a, all mediators differed significantly across disability statuses (no formal and some college education were exceptions). The means across disability statuses for the continuous mediator are presented in Table 3. To assess which disabilities were different from one another, a Bonferroni post hoc adjustment (not provided) was conducted. According to this test, the physically impaired differed significantly ($p < .000$) from the two other forms of disability on the exposure mediator. However, the hearing and intellectually impaired did not appear to differ from one another. Given the more conservative nature of the Bonferroni adjustment compared to other post hoc tests, a Tukey's HSD and Least Significant Difference (LSD) adjustment were also performed. Similar to the Bonferroni adjustment, both post hoc tests denoted no differences between the hearing and intellectually impaired across the exposure mediator.

As shown in Table 3a, each disability status differed across all of the dichotomous mediators. Consistent with hypothesis 2b, the intellectually impaired possessed significantly lower levels of academic achievement (i.e. high school completion and college degree obtainment) compared to both the hearing and physically disabled. However, contrary to hypothesis 2a, the physically impaired denoted significantly higher levels of dependency than the other statuses. These findings were contrary to expectations given that the intellectually disabled reported the lowest levels of dependency (approximately 3 percent). This finding is also interesting in that this contradicts the prior literature regarding the increased need for assistance for daily tasks for this particular group (Hughes et al., 2012). Contrary to the second part of hypothesis 2a, the intellectually disabled denoted higher levels of employment when compared

to both the hearing and physically impaired (53 vs. 35 and 16 percent, respectively). Next, the guardianship measures were examined. Consistent with hypothesis 3a, the hearing impaired demonstrated larger peer networks compared to both the physically and intellectually disabled. However, there is no support for hypothesis 3b pertaining to the intellectually disabled residing with others. That is, out of all of the disability statuses, the intellectually impaired demonstrated higher levels of residing alone than the other two disability types. This was also contrary to expectations for the intellectually impaired given the literature suggesting the need for caregivers for daily tasks for this particular group (Hughes et al., 2011).

6.3 Multivariate Logistic Regression Models

In order to test hypothesis 4, the final step in the analysis was to perform a binary logistic regression predicting violent victimization. Two separate models were estimated. The first model includes both the key independent variables (i.e. physical and intellectual disabilities, with the hearing impaired serving as the excluded referent) and controls. The second model incorporates all of the variables from model one, while also introducing the theorized mediators of the association between disability type and victimization.

Table 4 shows both of the specified models of the regression. A few key findings are worth noting. First, as shown in Model 1, the physically impaired experience significantly higher odds of violent victimization than the hearing impaired (OR= 1.45). However, the intellectually impaired do not seem to experience a significantly different risk of victimization than the hearing impaired. This finding is interesting due to the suggestions of prior literature demonstrating the increased risk for intellectually disabled (Hughes et al., 2012). Implications of this finding will be discussed in later sections. Second, of the control variables, age, SES and individuals who were married or cohabiting with their partner significantly correlate with victimization risk

($p < .000$). That is, for every one-unit increase in age, the odds of victimization decrease by 4%. Similarly, SES significantly influenced victimization risk in the predicted direction. That is, individuals that struggle to make “end’s meet” (i.e. paying monthly expenses such as rent and bills) experienced increased odds of victimization (OR= 1.71). In addition, being married or living with one’s partner decreases the odds of violent victimization by 49% (OR= .508). This finding is not surprising given the premise within Lifestyles theory that asserts married individuals may possess a more stable lifestyle than their single counterparts, exposing them to less risk.

Model 2 adds the potential mediators. Similar to model one, only the physically impaired appear to experience statistically higher odds of victimization when compared to the hearing disabled [$p < .05$ (OR=1.42)]. Another interesting finding is the effect of possessing some college on the odds of victimization. That is, individuals who reported having “some college” experience higher odds of violent victimization when compared to those with no formal education (the excluded referent) [$p < .05$ (OR=3.87)]. Along with individuals who had some college experience, the variable for SES remained significant in the predicted direction when theorized mediators were introduced ($p < .000$). The only other variable that demonstrated significance among the mediators was whether an individual lived alone. As presented in Table 3, living alone actually decreased the odds of victimization by approximately 38% (OR=.617). This is surprising given that cohabiting couples appear to possess decreased odds of victimization (OR= .626). One explanation for this could be the quality of the relationships with whom that respondent lives. Perhaps individuals with disabilities who live with others, as opposed to residing alone, may inspire a type of antagonism from other members in the household (Finkelhor & Asdigian, 1996). This finding will be discussed in later sections.

Both models present some unpredicted findings given this potential mediation model. That is, only two of the theorized mediators influenced victimization risk among this disabled sample (i.e. some college and living alone). Although both of these mediators were significant at $p < .05$ and $p < .000$, respectively, they influenced risk in the opposite of the expected direction. For example, routine activities would suggest that the presence of capable guardians could serve as a protective factor for individuals. Living alone may equate to the absence of these guardians and thus should positively affect risk. However, my analysis demonstrates a negative association, indicating a more protective impact on victimization. Possessing some college education had a positive impact on victimization risk. This is contrary to my initial expectations given the assertion in prior literature demonstrating the association between lower educational attainment and increased victimization risk (Doren et al., 1996; Hansen, 2003; Wilson & Brewer, 1992). Paralleling the significant mediators, the theorized mediators that did not reach statistical significance demonstrated unpredicted results as well. For example, all of the education variables increased the odds of victimization. As previously mentioned, this finding is contradictory to prior research that suggests the opposite effect (Hansen, 2003).

The statistical non-significance among the theorized mediators such as the exposure and dependency variables presents an even more interesting question. Why did empirically supported variables not have a significant impact on victimization risk? Although this question will be discussed in greater detail in later sections, I argue, in brief, that previously theorized contributors to risk may not affect the disabled the same way as their non-disabled counterparts. Perhaps activities associated with risky lifestyles (i.e. leaving the house and interacting with potential offenders) may not apply to individuals with certain disabilities.

7. Conclusion

The purpose of this study was two-fold. First, victimization rates of individuals with disabilities were examined. The analyses included several forms of disability, such as intellectual disabilities, hearing impairments, and physical limitations. Incorporating these various forms of impairment provides us with insight not only on the victimization of the disabled population, but risk for previously ignored disability statuses within the literature. Second, employing Baron and Kenny's (1986) model, this study examined the effects that disability had on routine activities/lifestyles (termed RATL throughout) and how this relationship might mediate the association between disability type and victimization. However, the analysis provided null findings for this potential mediation.

These null results are puzzling for a couple of reasons. First, routine activities/lifestyles theory has undergone rigorous empirical testing across the last three decades (Bennett, 1991; Finkelhor & Asdigian, 1996; Kennedy & Forde, 1990; Miethe & Meier, 1990; Miethe et al., 1987; Messner, Lu, Zhang, & Liu, 2007; Schreck & Fisher, 2004). Although the findings surrounding the guardianship element of routine activities have been mixed (Meier & Miethe, 1993; Miethe & Meier, 1990; Miethe et al., 1990; Finkelhor & Asdigian, 1996; Tillyer et al., 2011; Spano & Nagy, 2005), there is substantial evidence that supports the importance of other aspects of routine activities, and its theoretical counterpart Lifestyles (i.e. target suitability and proximity) (Bones, 2013; Murray, 2003; Perreault, 2009; Tillyer et al., 2011; Turner et al., 2011; Wilson & Brewer, 1992).

Second, past studies examining the mediation effects of routine activities/lifestyles have denoted significant effects of these elements on the association between demographic characteristics and victimization risk (Kennedy & Forde, 1990; Miethe et al., 1987; Taylor, Freng, Esbensen, & Peterson, 2008). For example, Lasley (1989) examined the links between

demographic characteristics of victims (i.e. being male or young) and predatory victimization. Their analysis supported the direct effects of demographic variables and the inclusion of RATL factors (i.e. patterns of alcohol use and nighttime activity) mediated the effect of victim demographics on predatory risk. In a more recent study, Taylor and colleagues (2008) highlighted the importance of RATL in their study of violent victimization among gang members. Employing survey data from a sample of 5,935 eighth graders, Taylor and co-authors (2008) found that gang members were more likely to experience violent victimization than their unaffiliated counterparts. However, the link between violent victimization and gang involvement was substantially mediated by RATL factors (i.e. negative peer commitment, availability of alcohol and/or drugs, unsupervised leisure time, etc.). That is, the effect of gang membership on victimization drastically decreased when accounting for these factors. Other studies have noted similar findings (Spano, Freilich, & Bolland, 2008; Vezina et al., 2011).

Given that the above literature evidences significant effects for RATL variables mediating the link between demographic characteristics and victimization, an additional multivariate model was conducted to examine the predicative power of the RATL for this study. First, a dummy variable was created in order to control for the disabled versus the non-disabled (i.e. non-disabled are 1, disability is 0). Next, sample characteristics were derived for the non-disabled population (n=31,748). For the non-disabled sample: 92% were white, 45% were male, 55% were married, and approximately 5% had experienced violent victimization (for more descriptive information for the non-disabled sample, please see Appendix A). Next, separate regression models including the controls and RATL variables were estimated. According to the first model solely for controls, all variables (i.e. age, sex, race, marital status, and SES) were significant ($p < .05$). Moreover, as shown in model 2, variables measure RATL concepts were all

statistically significant (for exceptions see employment Appendix B), accounting for controls. Moreover, these RATL factors, with the exception of the education and employment variables, were all in the predicted direction. This contrast is interesting for two reasons. First, as mentioned previously, prior studies have shown significant mediation effects of routine activities/lifestyles factors on victimization for a variety of different independent variables (Lasley, 1989; Taylor et al., 2008; Vezina et al., 2011), but the current project failed to detect mediation effects. Second, these analyses suggest that there may be alternative explanations regarding the link between the disabled and their victimization. That is, the RATL variables performed as expected in the non-disabled analysis. However, these variables did not perform in expected ways for the disabled sample. This suggests the problem may not be measurement. Rather, it points to the possibility that we need an alternative theoretical explanation for victimization of the disabled. Before I explore what that alternative explanation might look like, I discuss another possibility, that of statistical power.

One potential explanation for the discrepancies between the current project and the previous literature with regard to mediation is the notion of power. As with most mediation models shaped after Baron and Kenny's (1986), there appears to be an average sample size that is necessary to achieve .8 power for most mediation tests (Fritz & MacKinnon, 2007). A meta-analysis conducted for different mediation models found that, with regard to the Baron and Kenny approach, larger sample sizes are needed in order to obtain the appropriate level of empirical power. Fritz and MacKinnon (2007) denoted that a sample size of at least 20,866 is necessary to establish the appropriate level of power for this particular mediation model. Because the disabled sample size for this study ($n= 6,460$) was small relative to this standard, perhaps this may explain these null findings. Moreover, due to the size of the non-disabled sample ($n=$

31,748), this may provide further support for the need of a larger sample when establishing power. Deficits in power may also be attributed to the null findings surrounding the intellectually disabled. That is, although prior research suggests that the intellectually impaired experience higher odds of victimization (Hughes et al., 2012), the insignificance between them and the hearing impaired may be due to low statistical power. This power issue does not, however, account for the lack of significant direct effects (in the expected direction) of lifestyles/routine activities variables on victimization.

Another explanation could be that, although prior work has examined special populations (i.e. physically impaired, intellectually disabled, etc.) (Olofsson et al., 2015; Khalifeh et al., 2013), part of the theoretical chain between disability and victimization may be broken. This is evident in the earlier analysis shown in Table 2. Although there are significant differences in the mediators across disability statuses (for exceptions see hearing and intellectual impairments above), these theorized mediators may not be associated with victimization for this particular group. Stated differently, according to the Baron and Kenny approach to mediation, the independent variable (disability status) must be correlated with the outcome variable (victimization). This is evident in the bivariate presented in Table 2. Next, the independent variable must be correlated with the mediator (i.e. all of the above target suitability, guardianship, and exposure variables). This is demonstrated in Table 3. Lastly, the mediators must be correlated with the outcome variable. This may be the genesis of the issue.

That is, the theoretical base for RATL may not apply to this disabled population. For example, with regard to the element of proximity, actual motivated offenders may not be properly examined. Perhaps, instead of analyzing the potential spaces in which disabled individuals might come into contact with offenders, we should be evaluating contact with others

outside of the primary caregiver (if there is one). This may be important for two reasons. First, depending on the type of disability and severity, many disabled individuals face difficulties when leaving the home (Priestley, Rabiee, & Harris, 2003). This may pose an issue for standard analysis of proximity in that disabled individuals may not share the same space as motivated offenders often enough to pose a risk for victimization. In addition, disabled individuals may have difficulties attending places such as bars where individuals may come into contact with offenders, due to communication barriers (Noens & Berckelaer-Onnes, 2004), and the general inability to access these places (Church & Marston, 2003). One possible solution may be to re-evaluate the usefulness of incorporating proximity within disability research given several limitations associated with varying forms of disability.

Similar to the proximity issue, target suitability may also need to be reconceptualized in order to accurately assess disabled populations. The proposed reconceptualization is two-fold. First, stemming from their work on routine activities, Finkelhor and Asdigian (1996) asserted that target suitability be broken down into three categories: target vulnerability, target gratifiability, and target antagonism. Although there appears to be very little work that has tested all three aspects of this reconceptualization (for exception see Boney-McCoy & Finkelhor, 1996), measures for target vulnerability and antagonism may be more relevant than suitability in general when considering disabled populations. That is, depending on the severity and type of impairment, some individuals with disabilities may be perceived as weaker and more vulnerable than others (Perrault, 2009). This may especially hold true for individuals with visible signifiers of disabled as this may cue offenders to act (Bones, 2013). With this in mind, one possible way to incorporate this idea of perceived vulnerability would be to integrate measures that focus on

not only dependency, but severity of impairment as well as how others may perceive the severity of an individual's disability.

Second, in addition to the inclusion of target vulnerability within disability research, target antagonism should also be considered when examining this unique population. Because there are behavioral conditions associated with some forms of disability (i.e. ADHD, Autism Spectrum Disorders, etc.), how disabled individuals interact with others should be taken into consideration. For example, Taylor and colleagues (2010) found that bullying victimization rates were higher among adolescents diagnosed with ADHD compared to their non-disabled counterparts. These increased odds of victimization were attributed to negative externalizing behaviors that were associated with general ADHD diagnoses. Work examining adolescents with autism yielded similar results (Montes & Halterman, 2007). In order to account for the importance of target antagonism, future disability research should not only incorporate externalizing behaviors associated with varying forms of disability but should also control for negative perceptions of peers.

Corresponding to the original element of RATL, the study of guardianship among disabled populations may also need to be reconceptualized. Although social support from peers and larger network size have demonstrated to be significant deterrents for victimization (Tillyer et al., 2011), this may not be the best way to gauge guardianship among the disabled. Because individuals with disabilities typically reside with a primary caregiver (Murray, 2003), disability research should integrate measures evaluating the quality of relationships between the disabled and other residents. Borrowing from the mental health research, Silver (2002) argued that involvement in conflicted social relationships may influence the risk of victimization. Moreover, these relationships mediated the effects of mental disorder on violent victimization. This may be

relevant for individuals with disabilities as conflicted relationships with strained caregivers may form. The phenomenon known as "caregiver burnout" is a psychological process that is attributed to the strain of caring for others (Hubbell & Hubbell, 2002). When a caregiver experiences diminished personal accomplishment and emotional exhaustion, relationship strain may develop (Keidel, 2002). This strain may lead to neglect for dependents and physical violence. Because caregiver burnout may be strongly associated with impaired individuals, it may be beneficial for future disability research employing RATL to include measures for the quality of relationships between the caregiver and the dependent.

7.1 Limitations

Every study has limitations. This project is no exception. One major limitation is the cross-sectional nature of this study. Because longitudinal data was not utilized for analysis, establishing the temporal order of effects is not possible. That is, whether or not victimization was a product of disability, or whether prior victimization lead to disability is indeterminable. However, it seems likely that the victimization was a consequence of the disabilities studied here, rather than their cause. Future examination of this data should take advantage of the ongoing collection efforts of this particular survey. As there are now three reported waves, future analysis should incorporate this data to examine the directionality of this association. This may be most acute when examining the components of routine activities, since these factors may be either a cause or consequence of victimization.

Along with the cross-sectional nature of the data, there are also several sampling characteristics that need to be addressed. First, victimization was a relatively rare event. This holds true for both the disabled and non-disabled samples. Although the rarity of victimization is a desired outcome, the low number of victims poses a problem for statistical power. Second, the

visually impaired were excluded from analysis, as noted in footnote 2. Although the poor quality of the measure is a viable reason for exclusion, this group is widely ignored within the literature (Hughes et al., 2012). This presents an issue when contributing to the literature on sensory impairments as visual disabilities fall under the “sensory impaired” category. Third, the average age for the disabled population was around 60 years of age. This may influence the overall interpretation of the findings. That is, does the sample exemplify individuals born with disabilities, or is this a story regarding aging? Interestingly, the average age of the non-disabled sample is 50 (see Appendix A), which indicates that the sampling strategy produced an older sample, but the limitation remains. Lastly, 92% of the sample was white. The homogeneity of the sample impacts the generalizability of the results. Perhaps, victimization experiences among other disabled ethnicities may significantly vary from white disabled experiences.

Another limitation may be the measurement of the RATL concepts. For example, the “lifestyles” variable was a summation of particular places that respondents may have visited (see measures for the full list). These places include museums, movie theaters, and libraries. However, there are two potential problems with this operationalization. First, individuals may not come in to contact with motivated offenders at these places, as they may not be considered “high-risk” spaces. Moreover, this particular variable does not account for the “time of day”, which has also been associated with increased victimization (i.e. nighttime activity) (Cohen & Felson, 1979). Second, due to constraints in daily activities, typical operationalizations of RATL may not be applicable to the disabled population. This concern may affect the target suitability concepts as well. For example, dependency was measured as a summation of difficulty with daily tasks (see measures for complete list of activities). However, the caregiving literature suggests that the severity of the disability (vulnerability) and associated externalizing behaviors

(antagonism) may also influence suitability. Perhaps, classic operationalizations of RATL need to be reconceptualized for the disabled population to accurately develop potential factors.

Although statistical procedures were taken to correct the shortcomings associated with missing data, this is still a limitation of this study. Because many of the variables used within the analysis of focal theoretical concepts were missing large portions of data, a stepwise deletion was employed. However, particular variables such as education were more difficult to address. The education variable was missing approximately 55% of data for all participants. Given that this variable was essential in the analysis of target suitability, we placed the missing data with the mode. Although this is not standard protocol, the inclusion of this variable was necessary. Future replications of this study should utilize other statistical methods such as conducting multiple imputations or employing another dataset that possesses more data for that particular variable.

7.2 Closing Remarks

While this study presents null findings for the mediation effects of RATL on the link between disability and victimization, these results are beneficial for a few reasons. First, this study documents a variation in risk across previously neglected disabilities (i.e. the hearing impaired). Second, these findings may evidence the need for a new theoretical model of victimization for special populations. Because victimization is a highly personal event, tailoring the measures to the individual with disabilities brings the field one step closer to understanding the inner workings of victimization events. Thus, this research may also indicate the need for policy implementation surrounding caregivers and enhancing the quality of the lives for individuals with disabilities.

Appendix A: Non-Disabled Sample Description

Variable	Mean	SD	Min	Max
<i>Independent Variables</i>				
No Disability	.611	.488	0	1
<i>Potential Mediators</i>				
Exposure	4.823	2.073	0	8
<i>Target Suitability</i>				
No Formal Education	.018	.133	0	1
High school	.721	.448	0	1
Some College	.080	.271	0	1
College Degree	.184	.388	0	1
Employment	.505	.500	0	1
Dependency	.126	.483	0	3
<i>Guardianship</i>				
People You Feel Close To	.618	.486	0	1
Living Alone	.822	.382	0	1
<i>Controls</i>				
Age	50.07	18.021	16	80
Sex	.450	.498	0	1
Race	.079	.270	0	1
Married	.545	.498	0	1
SES	.319	.466	0	1
<i>Dependent Variable</i>				
Violent Victimization	Frequency		Percent	
No	6095		94.3	
Yes	365		5.7	

Appendix B: Binary Logistic Regression Predicting Victimization (n =31,748)

Variables	Model 1			Model 2		
	b	SE	OR	b	SE	OR
<i>Independent Variables</i>						
No Disability	-.743***	.058	.476	-.702***	.060	.496
<i>Potential Mediators</i>						
Exposure		-		.066***	.014	1.068
<i>Target Suitability</i>						
No Formal Education		-			-	
High School		-		.970**	.341	2.638
College Degree		-		.916**	.347	2.499
Employment		-		.106	.058	1.111
Dependency		-		.188***	.051	1.207
<i>Guardianship</i>						
People You Feel Close To		-		-.180**	.054	.835
Living Alone		-		-.176**	.081	.839
<i>Controls</i>						
Age	-.035***	.002	.966	-.036***	.002	.965
Sex	.304***	.052	1.356	.307***	.053	1.359
Race	.269**	.081	1.308	.264**	.082	1.303
Married	-.403***	.058	.668	-.358***	.068	.699
SES	.544***	.054	1.723	.553***	.056	1.738

Note: *p<.05, **p<.010, ***p<.000. Model 1 only includes the independent variables and controls.

Model 2 includes all variables in the equation.

8. References

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Vita

Taylor Lynn Gann was born September 28th, 1992. She initially was raised in the suburbs of Georgia, however she moved to a number of places within the Southeast of the U.S. due to relocations mandated by the military. In her early teenage years, she eventually came back to Georgia, and attended Parkview high school. Upon graduating, Taylor was immediately accepted to Georgia State University (GSU). There she graduated with her Bachelor of Arts in Psychology within three and a half years, and met several future colleagues within the Criminal Justice department. After obtaining her Bachelors, Taylor decided to continue her secondary education with the Criminal Justice department at GSU. Throughout her journey toward her Masters, Taylor gradually began to formulate a research agenda. She focused on issue surrounding disabled populations (i.e. personal victimization), and published on a variety of topics such as appearance bias in policing, the victim-offender overlap, and victimization of disabled inmates within U.S. correctional facilities. After several years of specialized research, Taylor acquired her Masters of Science in Criminal Justice and Criminology. Today, she currently resides in Smyrna, Georgia, and is continuing her post-secondary education to obtain her Ph.D. in Criminal Justice and Criminology.