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Living with Cain: Associations Among Sibling Trauma, Sibling Aggression, Social Adaptability, and Risk Taking in College

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LIVING WITH CAIN: ASSOCIATIONS AMONG SIBLING TRAUMA, SIBLING AGGRESSION, SOCIAL ADAPTABILITY, AND RISK TAKING IN COLLEGE

by

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ABSTRACT

This study evaluated the relationship between three different dimensions of sibling abuse– verbal, physical, and sexual– and communicative social adaptability and risk-taking outcomes. A quantitative survey (N = 477) explored the frequency of such abuse among college students and self-reported risk-taking behavior, social experience, social wit, appropriate self-disclosure, social confirmation, and social composure. Moreover, participants responded to nominal prompts asking whether they ever reported their sibling abuse. Independent sample *t*-tests and correlation tests show that survivors of sibling trauma are moee likely to appropriately disclose socially and are more likely to report engaging in an index of various risky behaviors (e.g. heavy drinking and suicidal ideation) during their life. The three dimensions of trauma are correlated with different dimensions of communicative social adaptability and risk-taking behaviors. With regard to communicative social adaptability, experiencing verbal abuse is correlated with an increase in social confirmation, appropriate social disclosure, and social wit while physical abuse is correlated with an increase in social confirmation and social wit. These results supplement a small but extant body of literature on sibling abuse and demonstrates the need to further study maladaptive sibling dyads.

Keywords: Siblings, trauma, abuse, violence, report, communication

This thesis is dedicated to my mom, Kate Lind Collins, and my siblings Celsey, Chase, Chance, and Cydney. I would never have made it here without you. I love you. Special dedication to my dogs, Simon and Riley, as well. Your “boofs” kept me strong.

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CHAPTER 1: INTRODUCTION

His brother's arm like a long, twisting tube– serpentine in nature– would slowly wrap itself around Daniel Smith's neck. As the pressure grew tighter and tighter, Daniel too tired to even cry, let alone yelp, he knew that this kind of violence was qualitatively different than what routine sibling rivalry must have been. Curious, too, was how little a conflict or innocuous a circumstance might precipitate this kind of fighting. They were not squabbles over a toy truck, nor were they petty slaps in the backseat of a car on an interminable family trip to Virginia Beach. This was not even violence in the sense that, painful as it may be, that pain would soon subside– this was abuse (Butler, 2006).

"Fighting back just made it worse, so I'd just take it and wait for it to be over," Daniel Smith said of the abuse by his older brother in an exclusive interview with the New York Times in February of 2006. "What was I going to do? Where was I going to go?" He recalled. "I was 10 years old." Daniel recalls the kinds of times with his brother that all young boys growing up together in the '80s, when buying power was strong and violence against children seemed exclusive to milk cartons, must remember. "We played kickball with neighborhood kids, and we'd go off exploring in the woods together as if he were any other friend,"

Sibling violence has a storied tradition, from cautionary Biblical tales to the wicked stepsisters in Charles Perrault's *Histoires ou contes du temps passé* (a bound collection of fables that included the first popular iteration of the Cinderella fairytale). Contemporary fiction, too, is replete with sibling conflict, be it the brother-on-brother violence in Steinbeck's *East of Eden* or the sibling rivalry of Loki and Thor. Still, contemporary media too often depicts the dynamic of

violence as a requisite phase of adolescence. Siblings, it is reasoned, argue, kick, and shove, and to suggest otherwise is perhaps more indicative of denial and delusion than the maintenance of a centuries-old tradition. Sibling violence is common among birds of prey– the blue-footed booby will peck its siblings to death before pushing them from the nest– but should it be common among young boys and girls, some of whom are no older than infancy?

Daniel Smith lives his life in desperate need for solitude, terrified of even the slightest of loud noises, and sees his brother, Sean– who died of a drug-overdose in 2003– in the faces of those around him who displays even the most marginal hints of aggression. It may be common, yes, but it is not normal. Daniel Smith is not alone in his life-long torment related to his abuse. In phone surveys of a representative sample of 2,030 children, those between the ages of two and nine who had been repeatedly attacked by a sibling were twice as likely to develop severe symptoms of trauma, among them anxiety, depression, suicidal ideation, fear of the dark, and sleeplessness (Caffaro, 2005). One of the first comprehensive examinations of sibling abuse and trauma, Caffaro's article concluded that recognition and treatment of sibling abuse has desperately lagged behind the attention paid to parents or caretakers who abuse their children.

CHAPTER 2: LITERATURE REVIEW

Sibling Relationships

Sibling relationships are valuable. Adolescents with one or more sibling report warmth/closeness to their siblings and have been observed to exhibit developmentally superior social and behavior skills (e.g. conflict management) when around their peers (Furman & Buhrmester, 1985). Sibling relationships endure from earlier childhood to old age and are frequently the longest-lasting relationships in an individual's life (Cicirelli, 1995). Sibling relationships, moreover, differ from conventional peer-to-peer relationships in that they are not voluntary, are indefinite, and are both daily and intimate in nature (Cicirelli, 1995). That is, siblings cannot erase their bond to another another– they cannot erase or eliminate the nexus (their parents) shared by one another.

Studies rooted in life course theory, too, have examined changes in sibling closeness finding that patterns of change and closeness are linked inextricably to life transitions and that, on average, siblings grow closer with one another as they grow older (Jensen, Whiteman, & Fingerman, 2018). Contemporary research has expanded on the developmental and transitional nature of sibling relationships to further examine how one sibling influences the cognition and behavior of another. Indeed, in a longitudinal analysis of 2,043 middle school children with their siblings, relationship quality and future behavior were bidirectional insofar as the prosocial behavior of an individual child was predictive of sibling relational quality and sibling relational quality was predictive of the prosocial behavior of another sibling (Pike & Oliver, 2017). Fundamentally, children with siblings report better social outcomes, higher degrees of life satisfaction, and greater emotional resilience during times of economic hardship or bereavement

(Coyle, Demaray, Malecki, Tennant, & Klossing, 2017; Fullerton, Totsika, Hain, & Hastings, 2017; Soysal, 2016).

Sibling Communication

Siblings communicate with one another differently than they do with their peers or other family members. They develop secret languages to circumvent parental understanding, they act as important socializing agents for drug and alcohol consumption and are considerable influences on their siblings' relational maintenance behaviors with others later in life (McNallie & Hall, 2015; Samek et. al, 2018; Thorpe, Greenwood, Eivers, & Rutter, 2001). Healthy communication between siblings is often characterized as frequent, its breadth and depth, punctuated by an inherent sense of solidarity and togetherness (Rocca & Martin, 1998). Sibling relationships and their distinct channels and the depth of their communication have cross-pollinated the realms of counseling and behavioral therapy, which proves helpful in treating depressive symptoms and helping adolescents cope with a wide spectrum of learning and cognitive disabilities (Douglas, Kammes, Nordquist, & D'Agostino, 2018: Finan, Ohannessian, & Gordon, 2018; Vatne & Zahl, 2017).

Sibling relationships are valuable. They socialize adolescents and provide social and emotional guidance and are abounding with quirks, such as the secret languages observed by Thorpe et. al (2001). However, just as sibling relationships can develop appropriately and favorably– and they do just that quite often– they can sometimes go wrong, sometimes unintentionally, and sometimes with concerted intent.

Sibling Conflict and Rivalry

Sibling conflict and rivalry is inevitable, and in many cases, it is an organic byproduct of the interminable relationship between adolescents (Laursen & Collins, 1994) that grows out of the back-and-forth dichotomy by early adulthood. (Recchia & Witwit, 2017). Sibling conflict is endemic, and siblings fight over such everyday occurrences as scarce parental and monetary resources, competing interests, and goal attribution (Garcia, Shaw, Winslow, & Yaggi, 2000; Recchia & Witwit, 2017). Unfortunately, sibling conflict can be so fierce that it overpowers the positive influence of sibling relationships described above. One explanation for the potential intensity of sibling conflict lies in parent–offspring conflict theory (Trivers, 1974). The theory suggests that parents balance their investments in their offspring to maximize the probability of each offspring surviving to reproduce. Because each sibling has a larger investment in their own survival compared to the survival of other siblings, there will almost always be competition among them for scarce resources including affection and attention from caregivers (Salmon and Malcolm, 2011). Sibling rivalry can become intensified when resources are truly scarce and when offspring perceive parents to distribute resources unfairly among offspring (Danielsbacka and Tanskanen, 2015; Pollet and Hoben, 2011). In some species of birds, sibling rivalry routinely results in older siblings murdering younger siblings in order to secure their share of resources. Thankfully for those of us with older siblings, sibling conflict is rarely lethal. However, the intensity of sibling rivalry can be traumatic for many people.

Trauma

As David's story and several others like it suggest, sibling rivalry can rise to the level of traumatic experience. The Substance Abuse and Mental Health Services Administration defines

trauma as physical or emotional harm resulting from an event or series of events experienced by an individual that has lasting adverse effects on the individual's functioning and "mental, physical, social, emotional, or spiritual well-being" (SAMHSA, 2019, para. 1). Indeed, beyond the concern for the individual and their singular well-being, trauma carries with it an estimated healthcare cost of nearly $8.3 billion dollars annually within the United States when accounting for medical care, mental health services, and lost productivity in the marketplace (SAMHSA; The National Trauma Institute). The presence of trauma is an omnipresent facet of the human condition, one that– while inexorable– can still be treated and addressed, especially as it pertains to sibling relationships conceptualized as adverse childhood experiences.

Adverse Childhood Experiences

Adverse childhood experiences (ACEs) were first studied on a large scale with a survey conducted by Kaiser Permanente in 1995 and 1997.[1] Although not focused specifically on sibling – sibling abuse, the study indicates the severity of traumatic abuse at a young age. Nearly 17,000 respondents received physical exams and completed confidential surveys regarding their current health and self-report measures regarding their early childhood experiences (Center for Disease Control). ACE questions covered the first 18 years of the respondent's life and addressed the following with the self-report measures: abuse (physical, emotional, and sexual), household challenges (e.g. violence, substance, abuse, mental illness, conflict, and divorce), and neglect, both physical and emotional (Center for Disease Control, 1998, para. 3). The prevalence of ACE estimates from the entire study sample included some alarming statistics. For instance, 13% of

[1] For a complete review of the initial Kaiser Permanente ACE study, including all demographics and results, please visit https://www.cdc.gov/violenceprevention/acestudy/about.html,

women and 7.6% of men reported experiences of emotional abuse, and 20.7% of the total population reported sexual abuse (CDC). Moreover, 14.8% of participants self-reported emotional neglect while 9.9% self-reported physical neglect (CDC). Moreover, nearly 60% of adults report abuse or difficult familial circumstances during their adolescence, and nearly 26% of children in the United States will experience or witness a traumatic event before their fourth birthday (North Dakota Department of Human Services).[2] Among participants who experienced trauma, survivors are fifteen times more likely to attempt suicide, four times more likely to develop drug or alcohol dependency, and much more likely to engage in high risk behaviors (National Trauma Institute, 2016, p. Trauma Statistics and Facts).

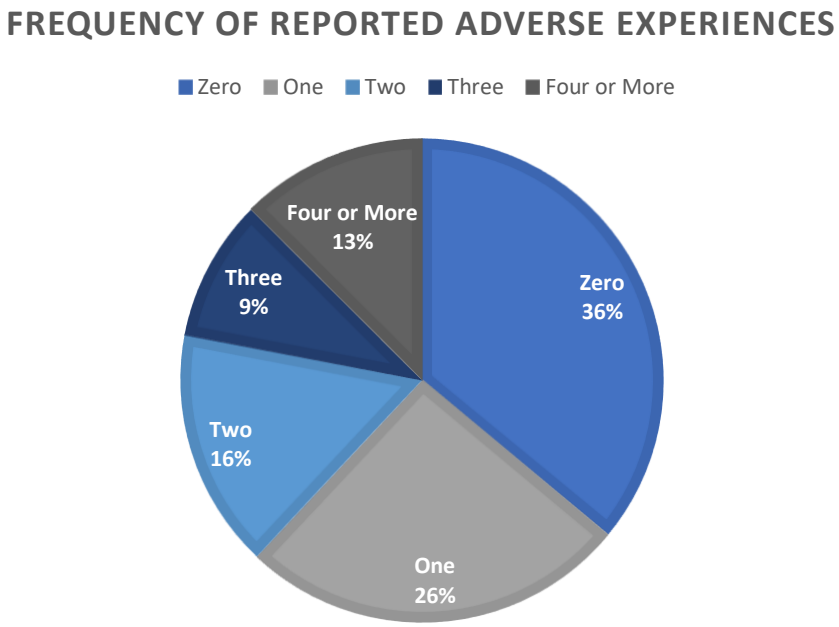

Figure 1:Frequency of Adverse Childhood Experiences per the CDC (2016)

[2] For a full report on the study, please visit https://www.nd.gov/dhs/Info/pubs/docs/mhsa/trauma-statistics.pdf

While the ACEs measurement is not directly tied to the research methodology and measures used here, the CDC's study marks the first large-scale exploration of trauma among youth and served as a major inspiration for this particular research study.

ACEs as Sibling Trauma

Sibling abuse was long considered a necessary rite of passage. Brothers would fight, and sisters would bicker– there were no undercurrents of violence or emotional harm that warranted intervention in any capacity. The 1980 National Family Violence Survey, though, revealed that, among all forms of family violence, sibling abuse was the most prevalent. Yet, despite the findings, questions about the nature of the abuse and how to correctly distinguish between normal sibling conflict and abnormal sibling abuse went largely understudied, perhaps in part on account of the researchers' zeal to study forms of domestic violence– marital abuse– that were commonly regarded as pressing social problems (Straus, Gelles, & Steinmetz, 1980). Sibling abuse can take the form of physical, psychological, sexual, or relational abuse, all of which have the potentiality to traumatize the abused (Caspi, 2012; Wiehe & Vernon, 1997).

Effects of sibling-initiated trauma. The effects of sibling abuse are often conceptualized as similar to those for more standard forms of child abuse, such as depression, substance abuse, eating disorders, and suicidal ideation (Caffaro, 2014). For instance, a study by Simonelli, Mullis, Elliott, and Pierce (2002) found that among 121 undergraduate students, those abused by their siblings were more likely to tolerate dating violence than those who had been abused by their parents. In addition, there is a link between depressive symptoms, suicidal ideation, and sibling bullying (Bar-Zomar & Klomek, 2018). Indeed, sibling bullying may also be a contributory factor along the developmental trajectory toward antisocial behavior problems and

high-risk behaviors such as alcohol and drug use (Dantchev & Wolke, 2018). Moreover, there is a significant relationship between the internalization of problems– the aforementioned depressive symptoms and suicidal ideations– and sibling bullying, far and beyond what might occur in traditional peer-bullying circumstances (Coyle, Demaray, Malecki, Tennant, & Klossing, 2017; Wolke, Tippett, & Dantchev, 2015). Frequent sibling bullying and abuse likewise reduces survivors' desire to communicate about the abuse, almost as though the survivor has become insulated in a pattern of abuse that is normal (Wolke, Tippett, & Dantchev, 2015). Internalization and lack of support may be especially problematic as children emerge as adults. Peer-support and parental support can mediate the effects of sibling abuse (Coyle, Demaray, Malecki, Tennant, & Klossing, 2017), though the availability and opportunities for seeking support from peers and parents perhaps dissipate once an emerging adult enters their freshman year of college. Unfortunately, most of the research on sibling abuse involves school-aged children, not emerging adults in college. The lack of research on emerging adults highlights the need to study sibling abuse and the ramifications on students in college and their communication skills.

ACEs and Communication

Research tracks adverse childhood experiences that influence health and well-being throughout the lifespan, from birth until death, and tracks the trajectory as follows: the adverse childhood experiences, disrupted neurodevelopment, social, emotional, and cognitive impairment, adoption of high-risk health behaviors, disease, disability, and social problems, and early death (CDC, 1997). There is, though, comparatively much less attention paid to sibling trauma. Sibling relationships are core to the development of behavior-reward outcomes, conflict management, and peer support (Mchale, Updegraff, & Whiteman, 2012). When compromised,

there is the potential for longstanding social ailments. A better examination of the social outcomes of enduring and surviving sibling abuse, however, is necessary to understand downstream communication impacts on emerging adults' communication behavior related to their childhood trauma. Indeed, the communication variables related to adverse childhood experiences in later young-adulthood will be conceptualized as social adaptability, social control, risky behavior and sensation-seeking in emerging adult college students.

Social Adaptability

Social adaptability has long been considered core component to the psychological and social development of an individual, mainly referring to their ability to adapt to and cope with ever-changing environmental and social needs (Jianxin & Yun, 2017). The relative success one exhibits with social adaptability, to a considerable degree, parallels with relational, career, and internal satisfaction later in late, and by extension, exerts a markedly strong influence over the development and maintenance of peer relationships (Jianxin & Yun, 2017). Moreover, students whose family communication environments are self-reported as cohesive, flexible, and satisfying are more likely to develop socially in college while performing better academically (Olszewski-Kubilius, Lee, & Thomson, 2014). Of chief interest to this investigation is the association between experiencing sibling related trauma and the ability to adapt to communication situations in college students, even those who have not experienced trauma in any capacity, struggle to adapt to a new and often intimidating social environment (Spott, 2018). The difficulty is compounded further by the lived-experience of trauma. Trauma survivors are more inclined to disclose at inappropriate times and to inappropriate social partners, use a surfeit of humor whether appropriate to the social setting or not and limit their social experiences (Bedard-

Gilligan, Jaeger, & Echiverri-Cohen, 2012; Henman, 2001; West, 2017). It is then worth exploring what influence the experience of sibling trauma has, and whether the influence is smaller than, greater than, or equitable to the communicative adaptability of wholesale trauma survivors. Indeed, given the unique socializing role of siblings in the house, it is reasonable to conjecture that sibling trauma, more than other traumas, has a larger adverse effect on social adaptability. The following hypothesis and research questions are thus proposed:

H1: Emerging adults who report traumatic sibling relationships will score lower on measures of social adaptability.

RQ1: How do different types of sibling on sibling abuse behaviors associate with social adaptability?

RQ2: Does seeking help by reporting sibling on sibling abusive behaviors influence social adaptability?

Sibling Trauma and Risky Behavior in College

Social control and self-control are both developed in early adolescence, and when compromised, deviant or anti-social tendencies sometimes develop (Teasdale & Silver, 2009). Moreover, these social bonds can weaken by dint of excessive stress, trauma, or atypical family structures (Knoester & Hayne, 2005). The resultant deviant behavior or manifestations of a stunted social development have no long-term goals, often codified as in-the-moment responses to external environmental stimuli (Crosswhite & Kerpelman, 2008). Adolescents who experience trauma in interactions with siblings, and later adults, are socially compromised insofar as they struggle to maintain goals or exhibit appropriate social restraint (Crosswhite & Kerpelman, 2008). Adolescents, though, model both their parents and other children in the household (read:

siblings), and while there is considerable debate, it is arguable that the primary source of behavior modeling is not the parent or caretaker, but a sibling (Barnes, Hoffman, & Welte, 2006; Simons, Whitbeck, Conger, & Conger, 1991).

These experiences, and any resultant trauma, shape behaviors and ground ostensibly suitable norms for communication. Absent well-developed problem-solving skills, adolescents who have experienced trauma can become defensive, reject social responsibilities, and grow increasingly angry, delinquent traits that can later have disastrous socio-physical consequences (Crosswhite & Kerpelman, 2008). Trauma and risky behavior among college students co-occur, particularly delayed gratification and compromised self-regulation with regard to risky drinking (Boyraz, Cherry, Cherry, Aarstad-Martin, Cloud & Shamp, 2018).

Indeed, it is well known that traumatic experiences, including childhood trauma, can severely interfere with the emotional health and academic performance of college students (Artime, Buchholz, & Jakupcak, 2018). Thus, the third and fourth research questions are proposed:

RQ3: How are different types of sibling on sibling abusive behaviors related to engaging in risky behaviors?

RQ4: Does seeking help by reporting sibling on sibling abusive behaviors influence engaging in risky behaviors?

RQ5: Among students who have experienced sibling trauma, what reasons do they report motivate sensation-seeking and risky behavior taking?

Sensation Seeking

Sensation seeking for the present study will be conceptualized as an elevated risk for substance use among adolescents and young adults (Evans-Polce, Schuler, Schulenberg, & Patrick, 2018). Sensation seeking manifests as a heightened willingness to recreationally drink, smoke, or use marijuana. Indeed, these substance abuse behaviors can occur in isolation or within the context of a social setting, though recent considerations have conceptualized sensation seeking and impulsivity as a multidimensional concept that parallels with a heightened risk to engage in risky sexual behaviors– e.g. condom-less sex and frequent sex (Curry et al., 2018). Trauma, it stands to reason, exacerbates the effects of sensation seeking, particularly when considering how counseling sessions are often enormously effective at mitigating or altogether stopping risk behaviors (David, McMahon, Luthar, & Suchman, 2012). It could be contended, then, that sibling trauma, correlated with a decreased willingness to seek help, manifests in more sensation seeking and risk behaviors. Indeed, while it is known that siblings often model substance-use behaviors off their older siblings (Altonji, Cattan, & Ware, 2017), is there a link between abuse by one sibling and substance abuse later in life? Moreover, are these behaviors done for lark, or are there underlying reasons, such as the mitigation of stress? Thus, the second hypothesis is proposed.

H2: Abusive sibling behaviors will be associated with risky behaviors (substance abuse, self-harm, and sexual behaviors) later in life.

Conclusion and Next Steps

Communication scholars, it should be noted, are not trained counselors, so trauma-informed research whose impetus is the identify or conceptualize the most effective treatment

modules is not relevant or worthwhile within the larger scope of trauma-informed-care, nor within the scope of communication research. There are, though, areas of inquiry within several steps throughout the research process wherein knowledge of the communication literature, informed by trauma, can serve to supplement the efficacy of psychoeducation, trauma narratives, and the collective understanding of the kind of impact trauma has on the body and mind.

The goal, then, was to first observe the prevalence of sibling trauma and then compare it to the prevalence of the social outcome and risky behavior measures, and then propose preliminary solutions to help students better transition from the trauma toward a successful academic and social life. The following research principally serves as an exploratory study that endeavors to observe and possibly identify links between sibling trauma, communication about the sibling trauma, and social outcome variables later in life.

CHAPTER 3: METHODS

The goal of this research was to better understand trauma afflicted by siblings and the manner in which it serves to either constrain or disrupt communication as children transition into young-adulthood. There are, indeed, several questions posed surrounding the nature of the familial communication environment, confirming or disconfirming communication, and later social competence in college. What kind of communication satisfaction do those who have experienced sibling trauma have, for instance, with friendships, romantic relationships, peer support, and, more broadly, general social development? Quite simply, sibling trauma is underexplored in the communication literature and there are considerable public health interests in better understanding the effects.

Moderating the effect has the potentiality to keep these young adults in school and give them access to the best possible social experience during their tenure at their university.

Several of the research articles explored in the literature review have looked at the following outcome measures: GPA, the number of sexual partners, number of close friends, and the number of extracurricular or athletic groups joined among several others.

Procedure

An online survey was conducted with a university-licensed survey tool (www.qualtrics.com). Participants were asked to complete a 20-minute survey identifying potential links between sibling trauma, risk-taking behaviors, and social communication outcomes in college. Participants were first presented with an informed consent statement and then clicked proceed if they chose to participate. Demographic screening questions were then presented, asking participants whether they are over 18, whether they are college students,

whether they have siblings, and whether, in their assessment, they would perceive the sibling relationships as having been traumatic or uncharacteristically violent/abusive, in order to filter out ineligible participants. Participants who answered "No" to either of the first three questions were directed out of the survey and thanked for their brief time. Participants who answered "Yes" to having siblings but "No" to having experienced sibling trauma were redirected away from the trauma measures (scale of negative family interaction) directly to the RISQ scale (risky behavior taking scale) and communicative social adaptability scale, explained in more detail below. This redirection allowed participants with healthy sibling relationships to participate and contribute data against which to compare responses from those who have experienced sibling trauma.

Students who answered "Yes" to having experienced sibling trauma were directed to a series of frequency measures where they self-reported whether their sibling(s) engaged in any of the listed abusive behaviors (e.g. slapped them) and how often the behavior occurred. After that, they were asked whether they reported the behavior to anyone. If they answered "Yes" they were redirected to the report measures and responded to items gauging their reporting experience, followed by the aforementioned RISQ and communicative social adaptability scales.

If they answered "No," participants were redirected to the RISQ and communicative social adaptability scales. The survey then redirected all participants to a series of demographic items. Students completing the survey for course credit were then redirected to a separate survey to record their name and instructor. None of their original responses were linked to the course credit responses. Participants were thanked for their time. Participation was voluntary. Confidentiality and anonymity were guaranteed.

Sample

The sample was principally recruited from undergraduate students at a large Southeastern university in the United States. In addition, recruitment posts were disseminated via interpersonal mental health networks at the university's counseling office. A recruitment post was also disseminated to Facebook page for a network of mental health counselors in the Southern United States.

A total of 567 individuals responded to the survey, though 74 responses were removed by virtue of the participants not being eligible, either because they were not presently college students or reported not having any siblings (N = 477). A small minority of additional responses (*n* = 16) were removed because participants failed to complete the survey in its entirety. There were more female (*n* = 290, 60.8%) than male (*n* = 177, 37.1%) participants, with 10 participants (2.1%) choosing not to identify their biological sex. The average age of participants was 20.43 years (*SD* = 4.24). A majority of the participants were Caucasian (n = 317, 66.5%), followed by African American (*n* = 58, 12.2%), Mixed Race (n = 36, 7.5%), Asian (*n* = 36, 7.5%), and other ethnic groups (*n* = 30, 6.3%).

Trauma Screening

Because this study specifically targets participants who perceive themselves to be involved in traumatic sibling interactions, the data was filtered by asking participants to self-report their perception of their relationship with a sibling or siblings as traumatic. Among the 477 participants, 69 (14.5%) responded affirmatively to the prompt "*In your assessment, would you characterize your relationship with one or more of your siblings to have been uncharacteristically abusive or traumatic?*" Because this report is interested in understanding

people who experienced childhood trauma at the hands of a sibling, only this portion of the data was analyzed throughout most of the study. Of the participants who reported sibling trauma, older siblings (n = 45) were reported to be abusive more often than younger siblings (n = 23), with one participant reporting that the sibling was their same age. In addition, brothers on their own were reported to be abusive (n = 31) more often than sisters (n = 24), though a sibling dyad with at least one brother and one sister was reported more often than anticipated (n = 14).

Measurement Instruments

Scale of negative family interaction (SNFI). The Scale of Negative Family Interaction (Simonelli, Mullis, & Rhose, 2005) was used to measure the prevalence, frequency, and severity of sibling trauma. Participants will self-report their experience of physical, emotional, and sexual abuse by siblings on a four-point frequency scale for 29 survey items (e.g. *Beat you up and/or hit you hard repeatedly).* Participants reported how often the 29 items occurred with any sibling in the household. Collective frequency scores for the 69 respondents who reported sibling trauma are reported above. In addition, three distinct dimensions– physical abuse, verbal abuse, and sexual abuse– were conceptualized by collapsing similar inventory items into collective representations. Means, standard deviations, and reliability estimates (where appropriate) appear in Table 3 below. Table 1 lists the trauma frequencies.

Table 1

Percentage of Participants Experiencing Different Kinds of Sibling Trauma (n= 69)

Sibling Behaviors	Percentage
Said things to hurt you	92.80
Screamed at you	91.30
Made fun of you in a hurtful way	89.90
Swore or cursed at you	88.40
Pushed, shoved, or pulled you	88.40
Scratched and/or pinched you	75.40
Threatened to harm you	66.70
Threw a hard object at you	62.30
Made threatening gestures	60.90
Pulled your hair	60.90
Hit you with a fist and/or punched you	60.30
Hit you with an object.	58.00
Kicked you	57.40
Slapped you	53.50
Bit you	46.40
Beat you up and/or hit you hard repeatedly	42.00
Spanked you	27.50
Tried to smother or tried to choke you	27.50
Threw you	23.50
Threatened you with, or used, a knife, gun, or sharp object	14.50
Intentionally exposed himself or herself to you	11.60
Touched you in a sexual way	11.60
Had you expose yourself to him or her	10.70
Had you touch him and/or her in a sexual way	8.70
Made sexual comments about you	7.40
Engaged you in oral sexual contact	4.70

Trauma report. Participants were asked whether or not they every reported the abuse or trauma they experienced on a nominal "Yes/No" survey item. Contingent on participant responses, the survey then dovetailed into one of two options: one track for those who did in fact report the abuse, and one track for those who did not. Report measures were presented for those who did

report the abuse while participants who did not report were redirected to the RISQ measures on the survey questionnaire. Those participants who did choose to report the abuse (n = 33, 47.8%) were presented with a nominal scale asking first whom they reported the abuse to (e.g. family, friends, or a counselor). Participants were given the option to select more than one answer. Then, participants responded to a single 5-point Likert scale (a great deal to none at all) measuring their perceptions of the experience with the prompt *"How much did you report?"*

Participants then responded to a nominal scale asking whether they were believed (yes, no, and partly), followed by a six-point nominal scale to report they response they received by dint of their report, e.g. *I was told to ignore the abuse and I was told to reconcile with my abuser* (a = .87). These responses were evaluated pursuant to the person to whom they reported the abuse and the outcomes of the report. These frequencies are available in Table 2.

Table 2

Trauma Report Frequencies

	Percentage
To whom did you report the abuse?	
Family	81.1%
Friends	27.27%
Therapist/Counselor	18.18%
Teachers/Professors	6.0%
Other	6.0%
How much did you collectively disclose to those parties?	
A great deal	48.5%
A moderate amount	18.2%
A little	15.2%
A lot	12.1%
None at all	6.1%
Did the person to whom you reported the abuse believe you?	
Yes	72.7%
Partially	21.2%
No	6.1%
What kind of support or advice did you receive?	
I was told to reconcile with my abuser	39.4%
I was given thoughtful and helpful advice and support	30.3%
I was told to ignore the abuse	21.2%
Other	6.1%
I was not believed	3.0%

RISQ (risky, impulsive, and self-destructive behavior questionnaire). Participants responded to a set of items from a modified version of Sadeh and Baskin-Sommers's (2016) self-destructive behavior questionnaire. The items represented several different risky and self-destructive behaviors, e.g. *"How many times total have you done this in your life" for behaviors such as "Tried to kill myself."* For each behavior, participants were asked to record on an ordinal scale how many times they had done each listed item in their life (a =.75) and in the past month (a =

.58). Given the reliability for the monthly frequencies, that data was excluded from analysis. Participants were then asked to respond to a 6-point Likert scale indicating their agreement or disagreement with the statements "I do this behavior to feel excitement, to get a thrill, or to feel pleasure" (*a* = .77) and "I do this behavior to stop feeling upset, distressed, or overwhelmed" (*a* = .78). Although not part of the main analysis, participants were then asked to report whether these behaviors caused them any of the following problems: going to the hospital (n = 28), legal trouble (n = 13), problems at work (n = 27), problems at school (n = 97), and problems with family (n = 112).

Communicative social adaptability: Communicative social adaptability was measured using the communicative adaptability scale. A self-report and observational instrument, the CAS measures the ability to perceive socio-interpersonal relationships and adapt interaction and behavior goals accordingly (Duran, 1983). The measure used in this study has five dimensions: social experience, social confirmation, social composure, appropriate disclosure, and wit. The dimensions are measured on a five-point Likert-type scale ranging from 1 (never true of me) to 5 (always true of me) for 25 statements, e.g. When I am anxious, I often make jokes. Alpha reliabilities for the communicative social adaptability dimensions are reported below alongside the means and standard deviations in Table 3.

Table 3

Means, Standard Deviations, and Alpha Reliabilities for Measures in the Study

	Sibling Trauma	*n*	*M*	*SD*	α^1
Communication adaptability					
Social Composure	Yes	69	3.22	0.95	.86
	No	403	3.37	0.87	
Social confirmation	Yes	69	4.10	0.78	.83
	No	403	4.11	0.62	
Social experience	Yes	69	3.38	0.97	.87
	No	403	3.54	0.81	
Appropriate disclosure	Yes	69	3.44	0.85	.77
	No	403	3.66	0.70	
Wit	Yes	69	3.30	0.88	.74
	No	403	3.34	0.77	
RISQ	Yes	69	1.83	.63	.78
	No	403	1.61	.53	
SNFI					
Verbal Abuse	--	69	17.41	5.16	.88
Physical Abuse	--	69	27.17	9.87	.92
Sexual Abuse	--	69	6.88	2.45	.88

Notes. [1] Cronbach's alpha computed for entire sample except for SNFI which uses only the 69 participants self-identified as traumatic sibling relationship.

RISQ = Risky, Impulsive, and Self-Destructive Behavior Questionnaire.

SNFI= Scale of Negative Family Interaction.

CHAPTER 4: RESULTS

Data Analysis

Results for the two hypothesis tests will be discussed first followed by a discussion of the exploratory research questions.

H1: Emerging adults who report traumatic sibling relationships will score lower on measures of social adaptability.

The first hypothesis argued that participants experiencing sibling trauma will score lower on measures of social adaptability than those who have not. An independent samples *t*-test was conducted to determine whether social adaptability scores differed between participants who have experienced trauma in their sibling relationships and those who have not. Separate t-tests were conducted for each dimension of the social adaptability scale. The independent samples *t*-test for social composure was not significant, t (470) = -1.17, p = .244, and suggests that there is not a difference of social composure scores between those that have experienced trauma, and those that have not experience trauma (see Table 5 for test and descriptive statistics for each of the significance tests).

The independent samples t-test for social confirmation was not significant, t (470) = -.010, p = .917, suggesting that there is not a significant difference of social confirmation scores between those that have experienced trauma, and those that have not experience trauma.

The independent samples t-test for social experience was not significant, t (470) = -1.32, p = .190, and suggests that there is not a difference of social experience scores between those that have experienced trauma, and those that have not experience trauma.

However, the independent samples t-test for appropriate social disclosure was significant, t (470) = -2.14, p = .035, and suggests that there is a difference of appropriate social disclosure scores between those that have experienced trauma, and those that have not experienced trauma.

Lastly, the independent samples t-test for social wit was not significant, t (470) = -0.35 p = .727, and suggests that there is not a difference of social wit scores between those that have experienced trauma, and those that have not experience trauma.

Table 4

Test and Descriptive Statistics for Variables in Hypothesis 1

	Trauma	*M*	*SD*	*t*	df	*p*
Social Composure	Y	3.22	0.95	-1.17	470	.244
	N	3.37	0.87			
Social Confirmation	Y	4.10	0.78	-0.10	470	.917
	N	4.11	0.62			
Social Experience	Y	3.38	0.97	-1.32	470	.190
	N	3.54	0.81			
Appropriate Social Disclosure	Y	3.45	0.85	-2.14	470	.035
	N	3.66	0.70			
Social Wit	Y	3.30	0.88	-0.35	470	.727
	N	3.34	0.77			

RQ1: How do different types of sibling on sibling abuse behaviors associate with social adaptability?

The first research question posed asks how different types of sibling abuse behaviors were associated with different social adaptability. The three dimensions of sibling trauma were compared with the five dimensions of social adaptability by means of a correlation. Participants over the age of 40 were removed from this analysis since the scores for those participants were significant outliers, so the correlations done were run with 63 participants (n = 63). The correlation table is presented in Table 5. Correlations among all variables in the analysis appears in Appendix A.

Verbal Abuse

The correlation between a participant's verbal abuse score and their social composure score was r = -.18, indicating a weak, negative correlation. However, this correlation was not significant (p = .19). The correlation between a participant's verbal abuse score and their social confirmation score was r = .38 indicating a moderate, positive correlation. This correlation was significant (p < .01). The correlation between a participant's verbal abuse score and their social experience score was r = .17, indicating a weak, positive correlation. However, this correlation was not significant (p = .23). The correlation between a participant's verbal abuse score and their appropriate social disclosure score was r = .35, indicating a moderate, positive correlation. This correlation was significant (p < .05). The correlation between a participant's verbal abuse score and their social wit score was r = .36, indicating a moderate, positive correlation. This correlation was significant (p < .01).

Physical Abuse

The correlation between a participant's physical abuse score and their social composure score was r = .04, indicating a weak, positive correlation. However, this correlation was not

significant (p = .78). The correlation between a participant's physical abuse score and their social confirmation score was *r* = .41 indicating a moderate, positive correlation. This correlation was significant (p < .01). The correlation between a participant's physical abuse score and their social experience score was *r* = 0.16, indicating a weak, positive correlation. However, this correlation was not significant (*p* = 0.23). The correlation between a participant's physical abuse score and their appropriate social disclosure score was *r* = 0.15, indicating a weak, positive correlation. However, this correlation was not significant (*p* = 0.26). The correlation between a participant's physical abuse score and their social wit score was *r* = 0.44, indicating a moderate, positive correlation. This correlation was significant (*p* < 0.001).

Sexual Abuse

The correlation between a participant's sexual abuse score and their social composure score was *r* = .02, indicating a weak, positive correlation. However, this correlation was not significant (p = 0.87). The correlation between a participant's sexual abuse score and their social confirmation score was *r* = -0.94 indicating a weak, negative correlation. However, this correlation was not significant (p = 0.49). The correlation between a participant's sexual abuse score and their social experience score was *r* = -0.14, indicating a weak, negative correlation. However, this correlation was not significant (*p* = 0.32). The correlation between a participant's sexual abuse score and their appropriate social disclosure score was *r* = 0.01, indicating a very weak, positive correlation. However, this correlation was not significant (*p* = 0.90). The correlation between a participant's sexual abuse score and their social wit score was *r* = 0.03, indicating a weak, positive correlation. However, this correlation was not significant (*p* = 0.84).

Table 5

Correlations Between Social Adaptability Scores and Different Types of Abuse (N = 55)

Variable	Verbal Abuse	Physical Abuse	Sexual Abuse
Social Composure	-.180	.037	.022
Social Confirmation	.382**	.407**	-.094
Social Experience	.166	.164	-.136
Appropriate Social Disclosure	.345**	.154	.017
Social Wit	.363**	.443**	.03
M	17.00	27.09	6.95
SD	5.35	10.65	2.68

Notes: *p < .05, **p < .01, ***p < .001

RQ2: Does seeking help by reporting sibling on sibling abusive behaviors influence social adaptability?

The second research question posed sought to address whether reporting sibling on sibling abuse had any influence on communicative social adaptability. An independent samples *t*-test was conducted to see if there was significant difference of social adaptability scores between those that have reported their sibling trauma ($n = 36$) and those that have not reported their sibling trauma ($n = 33$). The independent samples *t*-test for social composure was not significant, $t\ (67) = 0.89$, $p = .375$, suggesting that there is not a significant difference of social composure scores between those that have reported their sibling trauma and those that have not reported their sibling trauma (see Table 6).

The independent samples *t*-test for social confirmation was not significant, t (67) = 1.64, p = .105, and suggests that there is not a difference of social confirmation scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples t-test for social experience was not significant, t (67) = 1.16, p = .252, and suggests that there is not a difference of social experience scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples t-test for appropriate social disclosure was not significant, t (67) = 0.41, p = .682, and suggests that there is not a difference of appropriate social disclosure scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples t-test for social wit was not significant, t (67) = 0.68, p = .502, and suggests that there is not a difference of appropriate social wit scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

Table 6

t-test for Equality of Means, Reporting Sibling Trauma and Social Adaptability

Dimension	Report	*M*	*SD*	*t*	df	Sig. (2-tailed)
Social Composure	Y	3.33	0.95	0.89	67	.375
	N	3.12	0.95			
Social Confirmation	Y	4.26	0.55	1.61	67	.105
	N	3.96	0.92			
Social Experience	Y	3.52	0.99	1.16	67	.252
	N	3.25	0.95			
Appropriate Social Disclosure	Y	3.49	0.81	0.41	67	.682
	N	3.41	0.82			
Social Wit	Y	3.38	0.82	0.68	470	.502
	N	3.23	0.93			

H2: Abusive sibling behaviors will be associated with risky behaviors (substance abuse, self-harm, and sexual behaviors) later in life.

The second hypothesis argued that participants experiencing sibling trauma will score higher on measures of lifetime risky behaviors than those who have not. Victims of sibling trauma were compared to nonvictims by looking at each risky behavior separately. Z tests were computed to test the difference between proportions. These results are listed in Table 7.

Table 7

Risky Behavior Report Frequencies

How many times total have you done this in your life?[1]	**All**	**Trauma**	**No Trauma**	**z**
Thought about killing yourself	50.5%	58%	49.3%	13.27***
Tried to kill yourself	10.1%	25%	7.6%	4.43***
Drank alcohol until you blacked out or passed out	39.7%	47.8%	38.3%	1.49
Bought marijuana	29.1%	35.3%	28%	1.24
Used marijuana	48.9%	60.3%	47.1%	2.03*
Bought harder drugs (e.g. meth, heroin, cocaine)	4.0%	8.7%	3.2%	2.16*
Used harder drugs (e.g. meth, heroin, cocaine)	8.0%	17.4%	6.4%	3.11**
Had sex	66.1%	75.4%	64.5%	1.76
Had unprotected sex with someone you just met or did not know very well	23.3%	37.7%	20.9%	3.05*

Note: [1]Numbers indicate percentage of participants who reported having done the behavior at least once in their life.
*** p <.001; ** p<.01; *p<.05

RQ3: How are different types of sibling on sibling abuse behaviors related to engaging in risky behaviors?

The third research question posed sought to address whether different types of sibling abuse behaviors were associated with different lifetime risk-taking behaviors. The three dimensions of sibling trauma were compared with seven risk-taking inventories. A post-hoc decision was made to remove the two items related to purchasing drugs on account of how similar they were to the two drug-use items. Three participants who had experienced trauma did not complete the risk-taking measures and were thus removed (n = 66).

Verbal Abuse

The correlation between a participant's verbal abuse score and their lifetime score on "Thought about killing yourself" was $r = .31$, indicating a moderate, positive correlation. This correlation was significant ($p < .01$). The correlation between a participant's verbal abuse score and their lifetime score on "Used marijuana" was $r = .34$, indicating a moderate, positive correlation. This correlation was significant ($p < .005$). The correlation between a participant's verbal abuse score and their lifetime score on "Had sex" was $r = .29$, indicating a moderate, positive correlation. This correlation was significant ($p < .020$).

Physical Abuse

The correlation between a participant's physical abuse score and their lifetime score on "Thought about killing yourself" was $r = .34$, indicating a moderate, positive correlation. This correlation was significant ($p < .01$). The correlation between a participant's physical abuse score and their lifetime score on "Tried to kill yourself" was $r = .28$, indicating a moderate, positive correlation. This correlation was significant ($p < .05$). The correlation between a participant's physical abuse score and their lifetime score on "Drank alcohol until you blacked or passed out" was $r = 0.27$, indicating a moderate, positive correlation. This correlation was significant ($p < .05$). The correlation between a participant's physical abuse score and their lifetime score on "Had sex" was $r = 0.31$, indicating a moderate, positive correlation. This correlation was significant ($p < .05$). The correlation between a participant's physical abuse score and their lifetime score on "Had unprotected sex with someone you just met or did not know very well"

was $r = 0.23$, indicating a moderate, positive correlation. This correlation was significant ($p < .05$).

Sexual Abuse

The correlation between a participant's sexual abuse score and their lifetime score on "Tried to kill yourself" was $r = .33$, indicating a moderate, positive correlation. This correlation was significant ($p < .01$). The correlation between a participant's sexual abuse score and their lifetime score on "Used harder drugs (e.g. meth, heroin, cocaine)" was $r = .31$, indicating a moderate, positive correlation. This correlation was significant ($p < .012$). The correlation between a participant's sexual abuse score and their lifetime score on "Had unprotected sex with someone you just met or did not know very well" was $r = .46$, indicating a moderate, positive correlation. This correlation was significant ($p < .001$).

Table 8

Correlations Between Risk-Taking Behavior Scores and Different Types of Abuse (N = 66)

Variable	Verbal Abuse	Physical Abuse	Sexual Abuse
Thought about killing yourself	.313*	.038**	.158
Tried to kill yourself	.196	.283*	.329**
Drank alcohol until you blacked out or passed out	.217	.274*	.192
Used marijuana	.342**	.190	.211
Used harder drugs (e.g. meth, heroin, cocaine)	-.088	.033	.307*
Had sex	.286*	.311*	.117
Had unprotected sex with someone…	.226	.248*	.458***

Notes: *p < .05, **p < .01, ***p < .001

RQ4: Does seeking help by reporting sibling on sibling abusive behaviors influence engaging in risky behaviors?

The fourth research question posed sought to address whether reporting sibling on sibling abuse had any influence on lifetime risk-taking behaviors. An independent samples *t*-test was conducted to see if there was significant difference of life risk-taking behavior scores between those that have reported their sibling trauma (n = 36) and those that have not reported their sibling trauma (n =33). A post-hoc decision was made to remove the two items related to purchasing drugs on account of how similar they were to the two drug-use items.

The independent samples *t*-test for "Thought about killing yourself" was not significant, *t* (67) = -0.02, *p* = .985, suggesting there is not a significant difference in scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples t-test for "Tried to kill yourself" was not significant, *t* (67) = -1.24, *p* = .220, and suggests there is not a significant difference in scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples *t*-test for "Drank alcohol until you blacked out or passed out" was significant, *t* (67) = 2.30, *p* < .05, and suggests there is a significant difference in scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples t-test for "Used marijuana" was not significant, *t* (67) = 0.20, *p* = .842, and suggests that there is not a significant difference in scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples *t*-test for "Used harder drugs (e.g. meth, heroin, cocaine)" was not significant, *t* (67) = 1.37, *p* = .178, and suggests that there is not a difference in scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples t-test for "Had sex" was not significant, *t* (67) = 0.12, *p* = .906, and suggests that there is not a difference in scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

The independent samples *t*-test for "Had unprotected sex with someone you just met or did not know very well" was not significant, *t* (67) = 0.64, *p* = .527, and suggests that there is not

a difference in scores between those that have reported their sibling trauma and those that have not reported their sibling trauma.

RQ5: Among students who have experienced sibling trauma, what reasons do they report motivate sensation-seeking and risky behavior taking?

The fifth research question asked for the reasons those with sibling trauma reported as motivation for their risk-taking behavior. A paired-samples *t*-test was run to determine whether participants reported engaging in risky behaviors more to feel excitement or more to eliminate stress/stop feeling upset. Results for trauma participants were not significant, t (65) = -.74, p = .464, and suggests that there is no difference in reasons for risky-behavior taking among the trauma participants. Results for no-trauma participants were significant, t (392) = -5.39, $p < .001$, and suggests that there is a difference in reasons for risky-behavior taking among the no trauma participants. The mean score for excitement (1.82) is higher than the mean score for upset (1.68), and the results are statistically significant, indicating that among the no trauma participants, they are more likely to engage in risky behaviors to feel excitement or get a thrill than to stop feeling upset.

CHAPTER 5: DISCUSSION

Overview of Findings

Table 9

Hypotheses Results

Hypothesis	Results
H1: Emerging adults who report traumatic sibling relationships will score lower on measures of social adaptability. Independent samples t-test	H1: There were no meaningful differences in scores.
H2: Abusive sibling behaviors will be associated with risky behaviors (substance abuse, self-harm, and sexual behaviors) later in life. Z-test	H2: Suicidal ideation and suicide attempts were more common among those who experienced sibling trauma than those who did not.

Table 10

Research Question Results

Research Questions	Results
RQ1: How do different types of sibling on sibling abuse behaviors associate with social adaptability?	RQ1: Significant positive correlations among verbal abuse and self-disclosure, social wit, and social confirmation. Significant positive correlations among physical abuse and social confirmation and social wit
RQ2: Does seeking help by reporting sibling on sibling abusive behaviors influence social adaptability?	RQ2: No significant differences
RQ3: How are different types of sibling on sibling abuse behaviors related to engaging in risky behaviors?	RQ3: Significant positive correlations between verbal abuse and thought about killing yourself, use marijuana, and had sex. Significant positive correlations between physical abuse and thought about killing yourself, tried to kill yourself, blacked out, and had sex/unprotected sex. Significant positive correlations between sexual abuse and tried to kill yourself, used harder drugs, and had unprotected sex.
RQ4: Does seeking help by reporting sibling on sibling abusive behaviors influence engaging in risky behaviors?	RQ4: The only significant difference was "drinking alcohol until you passed out."
RQ5: Among students who have experienced sibling trauma, what reasons do they report motivate sensation-seeking and risky behavior taking?	RQ5: Those who did not experience sibling abuse sensation seek more to feel a thrill or excitement than to alleviate stress.

The confirmatory findings are as follows: survivors of sibling trauma perceive themselves more likely to appropriately disclose socially than those who have not experienced sibling trauma and are more likely to report engaging in an index of various risky behaviors during their lifetime than those who have not experienced sibling trauma. Additionally, participants who report a traumatic sibling relationship are more likely to report engaging in a variety of specific risky behaviors, particularly thinking about, and attempting, suicide. Moreover, different dimensions of trauma are correlated with different dimensions of communicative social adaptability and risk-taking behaviors. With regard to communicative social adaptability, experiencing verbal abuse is correlated with an increase in social confirmation, appropriate social disclosure, and social wit while physical abuse is correlated with an increase in social confirmation and social wit.

Specific Findings

Social adaptability. Research on family trauma and family violence contends that trauma survivors are less likely to navigate social situations appropriately– they will, in other words, have less social adaptation than those who have not experienced trauma (Bedard-Gilligan, Jaeger, & Echiverri-Cohen, 2012; Henman, 2001; West, 2017). Moreover, research on the resultant trauma from family violence in particular contends that pathological family trauma– that trauma more enduring and severe than existential, ephemeral trauma– exacerbates the cycle of violence (Gorman, 2001). Children in homes replete with violence are far more likely to induce violence situations in their own lives, thereby modeling the violent penchants around which they grew up (Abbassi & Aslinia, 2010; Gorman, 2001). It is surprising, then, to see that

among the sample here, sibling trauma participants scored no lower on the social adaptability dimensions than those who experienced no trauma.

The literature argues that appropriate self-disclosure is compromised by trauma of all kinds (Bedard-Gilligan et al., 2012; West, 2017), and this research confounds the existing knowledge with results that indicate sibling trauma to be different. Experiencing sibling trauma does not compromise appropriate social disclosure similarly to other forms of trauma. The lack of a difference between communicative social adaptability scores between the trauma and no-trauma groups is interesting to consider, contrary as it might seem to the earlier literature.

It could be argued that it is conceptually different than other trauma with regard to the some dimensions of social adaptability. When expanding the relevant literature from specific trauma to broader forms of abuse, there are explanations that perhaps better frame the results found here. Research on abuse and resiliency, for instance, suggest that with some combination of protective factors (e.g. forming relationships for survival, optimism and hope, rapid responsivity to danger), social adaptability can remain uncompromised (Mrazek & Mrazek, 1987). In conjunction with the small sample size, there remains the possibility that protective factors mitigated the scores on social adaptability among the sibling trauma participants.

Moreover, while college can be an intimidating social environment (Spott, 2018), the possibility to develop meaning, supportive relationship multiples insofar as the sheer number of resources available increases. Indeed, social support is a strong protective factor with regard to healthy emotional and social development among abuse survivors (Feiring, Taska, & Lewis, 1998). Still, though, comprehensive reviews of the relevant literature still often conclude that abuse and trauma increase vulnerability to adverse circumstances and negative social outcomes,

not the other way around (Iwaniec, Larkin, & Higgins, 2006). Resilience and social competency, too, remains difficult to predict (Rutter, 2007). The following is simply conjecture, though it is perhaps that those who have experienced trauma are more sensitive to the social needs of others on account of their experiences. Perhaps social adaptation is more than social fluency, but a survival mechanism wherein trauma survivors are hyper-aware social actors more attuned to social navigation since adaptation perhaps means less abuse. Abused children, for instance, are often extraordinarily aware of their verbal and nonverbal behaviors, behaviors that match their reticence to disclose abuse (Fontes & Tishelman, 2016; Kats et al., 2012). The causal matrix remains uncertain, though, and while disappointing on its face, several realms of future research on sibling abuse, trauma, resiliency, and communicative social adaptability open.

In addition, there is no significant relationship between any of the communicative social adaptability dimension scores and reporting the sibling trauma. Per the literature, it had been suggested that reporting the trauma would yield positive social adaptability outcomes (Bedard-Gilligan, Jaeger, & Echiverri-Cohen, 2012). The small sample size likely accounts for the lack of meaningful results here, and perhaps future research on trauma reporting would do well to focus on that aspect alone. Several pieces on reporting abuse and trauma– both reasons for and outcomes from– focus exclusively on that facet (Ho, Gross, & Bettencourt, 2017; Park, 2018). The present study sought a semi-holistic overview of various elements of sibling trauma and some potential outcomes, and unfortunately, not enough data was gathered within either the report/did not report participants. With only 67 participants who reported trauma, further distinctions rendered the respective sample sizes as 36 and 33 for report/no report respectively. Those samples are simply too small to draw any meaningful analysis from.

Comprehensively, though, the results as they relate to communicative social adaptability raise questions about extant bodies of trauma communication literature worth pursuing in the future (e.g. high social adaptability scores among trauma survivors). Sibling relationships are enormously valuable (Coyle, Demaray, Malecki, Tennant, & Klossing, 2017; Fullerton, Totsika, Hain, & Hastings, 2017; Soysal, 2016), which renders destructive or abusive sibling relationships as all the more disheartening. If nothing else, the present study demonstrates a need to continue to study maladaptive/abusive sibling relationships and the outcomes those relationships can have on victims later in life. Survivors of sibling abuse are no less worthy of interest than survivors of other kinds of abuse, and the results here, beyond identifying some demonstrable differences in the social outcomes between those with and without sibling trauma, demonstrate a need for further inquiry and evaluation.

Risky behaviors. With regard to risk-taking behaviors, experiencing verbal abuse is correlated with an increase in thoughts about suicide, marijuana use, and having sex. Physical abuse is correlated with an increase in thoughts about suicide, suicide attempts, risky alcohol use, and sex. Sexual abuse is correlated with an increase in suicide attempts, hard drug use, and unprotected sex. while only "drank alcohol until you blacked out or passed out" among the lifetime risk-taking behaviors inventory had a significant relationship when accounting for whether participants reported their sibling trauma. In addition, those who did not experience sibling trauma reported engaging in risky behaviors to feel excitement or thrill more than they did to alleviate stress or to stop from feeling upset. These results are particularly alarming considering that sibling abuse is the most common form of family violence (Straus, Gelles, & Steinmetz, 1980). Among the risky behaviors identified, suicidal ideation or suicide attempts are

the most alarming. Suicidal ideations and depressive symptoms are already common among college students (Furr, Westefeld, McConnell, & Jenkins, 2001; Xiao et al., 2017). Bahk et al. (2017) similarly found that among different dimensions of abuse, childhood sexual abuse predicted suicidal ideation, while verbal and physical abuse indirectly predicted suicidal ideation through symptoms of depression and anxiety. Sibling sexual abuse is on a continuum of childhood sexual behavior beyond what is considered age-appropriate curiosity, and despite being the longest lasting and most severe of intrafamilial abuse, it is also the least reported and studied. Despite the small sample size, then, the results here undergird the need to continue to evaluate and study intrafamilial sexual abuse, particularly as it exists between siblings. Moreover, the authors conclude that the best mitigating factor would be an increase in social support. The results found here parallel with those antecedent studies and further confirm the need to monitor and treat sibling trauma in the same way other forms of childhood abuse and maltreatment are treated. As part of a larger treatment modality, it is worthwhile to know that different degrees of abuse correlate with different risky behaviors. Direct communicative interventions could, and should, be implemented to not only acknowledge increased risk, but monitor students who are the most at risk by virtue of their sibling trauma.

Early studies found similar links (Button & Gealt, 2010) while also acknowledging that sibling abuse is the least likely form of abuse to be reported, either from survivor to counselor or counselor to other authorities (Bryant & Baldwin, 2010; Bryant, 2009). The abuse itself is not comprehensively reported, and even among the sample here, only 36 of the 69 reported their trauma to a parent, friend, teacher, or counselor. The sample was too small to draw any meaningful results from with regard to risky-behavior outcomes, though it nonetheless mandates

further study in the future in a climate where college students are already racked with depressive symptoms and anxiety. There is evidence to suggest that enduring sibling trauma only stands to make that worse.

CHAPTER 6: CONCLUSION

Limitations

The most pronounced of the limitations in the present study is the small sample of participants who reported having experienced sibling trauma. The decision was made to exclude participants who did not conceptualize their sibling relationship as traumatic from the trauma frequency measures, the result of which was only 69 participants out of 477 eligible to respond. Sample sizes for significant research outcomes should be neither smaller nor larger than necessary (Faber & Fonseca, 2014), and concerted interest must be paid toward finding a representative sample (Omair, 2014), particularly when the demographic in question is as targeted college students with sibling trauma.

Future research should make a concerted effort to target the trauma demographic, making better use of clinical networks, counseling centers, and realms wherein participant recruitment is more deliberate than it is in an undergraduate communication course. While the sampling no doubt proved effective in some cases, the discrepancy between the trauma and no-trauma demographics rendered data analysis and significant results more difficult than it otherwise may have been.

Moreover, it would have been valuable to ask participants about the dynamics of their family system. Early iterations of this project considered using Olson's (1993) circumplex model of family functioning as a core framing method for any abuse participants reported. The nature of a participant's family system– e.g. whether the family is by and large supportive or chaotic/unsupportive– would perhaps elucidate upon some of the more curious results found here, and it is regretful that those questions were ultimately not asked. Indeed, Rosenberg

(2003) argues that violence is a last resort when more effective forms of communication are not used or unavailable. Without any clear conception of the participants' family models and the common models of communication used therein, the data is missing necessary insight.

Future Directions

There is value in some of the results reported above. Though presently limited in scope, there is potential for a replication that extends the questions posed here toward a more targeted sample while simultaneously exploring clinical applications for the results observed here. If sibling trauma survivors are indeed more inclined to seek out and engage in risky behaviors, for instance, than administrations and first-year coordinators could develop networks and intervention strategies to encourage alternative outlets for stress management and the mitigation of unease.

Moreover, a replication with a larger sample would clarify some of the more curious results found here while also better solidifying those links between abuse and social adaptability and risk-taking that do exist. The intersection of interpersonal communication and health communication, too, remains an area where practice-based interventions and prevention methods could be developed and explored in depth. There are, too, other variables– e.g. income– that serve as protective factors from sibling abuse. Future studies should adopt an intersectional approach and identify links between gender, race, and class and how those variables serve to mitigate or exacerbate the severity and duration of sibling abuse. Inquiries into other interpersonal realms, such as relational quality and communication satisfaction with friends, romantic partners, peer support, and general social development are also worth exploring.

Conclusion

This study examined the relationships between different dimensions of sibling trauma, risk-taking behavior, and communicative social adaptability outcomes. First, as mentioned before, sibling trauma is prevalent and destructive, though still dishearteningly understudied in the discipline. Communication scholars are equipped with unique tools and insights that bridge the gap between what is understood about trauma and what still is not, and trauma-informed studies merit further interest.

The study undertaken here, though small in nature, stands to demonstrate the exigence for future communicative inquiry into abusive or traumatic sibling relationships. Previous research has done well to demonstrate both the positive advantages of having a sibling, such as greater degrees of emotional resilience, social support, and, fundamentally, improved relational quality (Coyle, Demaray, Malecki, Tennant, & Klossing, 2017; Fullerton, Totsika, Hain, & Hastings, 2017; Rocca & Martin, 1998; Soysal, 2016). The positive benefits of the socializing nature of having a sibling in adolescence cannot be understated, and while communication research has done well to explore the gainful social virtues of growing up with siblings, it is equally as valuable to explore sibling dyads characterized by abuse and trauma.

Maladaptive sibling relationships, as shown in the previous literature, are marked by abusive tendencies, disequilibrium in family roles, violence, depression, substance abuse, eating disorders, and suicidal ideation (Bar-Zomar & Klomek, 2018; Cafffaro, 2014; by Simonelli, Mullis, Elliott, & Pierce, 2002). This research here has supplemented the extant body of literature by further solidifying the links between different dimensions of sibling abuse, social adaptability outcomes, and risk-taking behaviors, the most prominent of which are suicidal

ideation and actual suicide attempts. The nuance, then, exists in those gradations of abuse, such as sexual abuse having the strongest correlation with suicide attempts. Indeed, the findings here are not strictly speaking new or surprising, but they do further draft the landscape of sibling abuse and trauma while reinforcing the need to identify and prevent the abuse as early as possible.

The most worthwhile suggestion, of course, is to simply profile the phenomenon and recognize its existence (Caspi, 2012), and it was my hope to do that here. More than anything, this study gave survivors of trauma an opportunity to share their experiences with the reminder that there are people out there willing and ready to listen. Every study undertaken on the phenomenon of sibling abuse serves to better supplement existing prevention programs, identify transgenerational links between abuse, and mount a concerted campaign to mitigate the abuse in a manner similar to other forms of abuse. As noted above, for instance, counselors are therapists are not mandated to report sibling abuse in the same way they are mandated to report other kinds of abuse, such as parent-child violence (Bryant, 2009). Recognition is needed to conceptualize sibling violence, paradoxical as it might sound, as both distinct and similar to other forms of abuse. Similar in that the effects of trauma are no different, but distinct insofar as the sibling dyad is communicatively unique, and the treatment therein distinct from what might be used in other relationships.

There are several implications for the research, both positive and negative. Social adaptability, for instance, can be used advantageously. College students who have endured sibling abuse can be helped to negotiate the meaning behind their trauma and successfully navigate career fairs, interviews, and their professional lives. The implications, too, extend

beyond college. Cognizance of the social adaptability outcomes of survivors of sibling trauma can stand to better supplement treatment, healing, intervention, and prevention.

Survivors of sibling abuse are communicating differently and behaving differently than those with siblings who have not experienced abuse of any kind. It is my sincere hope that this project serves as the first-step in a more concentrated line of research within the realm of sibling violence and sibling communication. Daniel Smith lived the early part of his life in fear until he was old enough and big enough to fight back. There are, though, countless other children regularly abused by their siblings without any clear line of recourse (Hatch, 2005). They are afraid, they are hurt, and they feel all alone.

APPENDIX A: CORRELATION TABLES

Table 11

Verbal, Physical, and Sexual Abuse, Lifetime and Monthly Risking Behavior Taking, Report Measures, Upset, Excitement, and Social Adaptability Correlations (N = 477)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Verbal abuse	1															
2. Physical abuse	.64**	1														
3. Sexual abuse	.12	-.01	1													
4.Social composure	-.13	.01	-.01	1												
5.Social confirmation	.36**	.40**	-.10	.17**	1											
6. Social experience	.17	.14	-.16	.66**	.46**	1										
7. Appropriate disclosure	.28*	.11	-.02	.23**	.39**	.29**	1									
8. Wit	.28*	.42**	.06	-.01	.28**	.17**	.23**	1								
9. Thought about killing yourself	.28*	.32**	.17	-.27**	.04	-.21**	.022	.148**	1							
10. Tried to kill yourself	.18	.27*	.34**	-.16**	.02	-.13**	-.017	.08	.45**	1						
11. Drank alcohol until you blacked out or passed out	.19	.25*	.20	.06	.09	.11*	.062	.135**	.128**	.07	1					
12. Bought marijuana	.15	.18	.25*	.04	.04	.08	.09*	.11*	.16**	.04	.49**	1				
13. Used marijuana	.33**	.18	.21	.04	.04	.12*	.08	.12**	.15**	.067	.526**	.773**	1			
14. Bought harder drugs (e.g. meth, heroin, cocaine)	-.15	.01	.36**	.06	.01	.03	.020	-.01	.031	-.02	.26**	.31**	.25**	1		
15. Used harder drugs (e.g. meth, heroin, cocaine)	-.06	.04	.27*	.06	-.01	.05	.04	.02	.01	-.03	.36**	.33**	.35**	.83**	1	
16. Had sex	.29*	.30*	.11	.20**	.16**	.24**	.07	.08	.06	.05	.37**	.33**	.40**	.12**	.17**	1
17. Had unprotected sex with someone you just met or did not know very well	.21	.23	.46**	.14**	-.04	.10*	.03	.15**	.12*	.13**	.46**	.41**	.40**	.27**	.32**	.37**

Notes: *p < .05, **p < .01, ***p < .001

APPENDIX B: MEASUREMENT INSTRUMENTS

STATEMENT OF CONSENT

Consent Welcome! Thank you for taking the time to participate in my survey. This survey is part of a student research project, but your responses to the questions asked here will remain anonymous. This project will measure sibling trauma and social adaptability in college. You must be a college student with siblings to participate in this survey. This survey will take approximately 10 minutes of your time.

Your participation in this survey is entirely voluntary. You are free to discontinue with your responses and withdraw at any time.

No personally identifiable information will be collected, and your responses will remain anonymous.

This survey includes some questions that address the issue of sibling violence, trauma, and risk seeking among those who have experienced sibling trauma or abuse. It may cause some degree of emotional distress. Your participation in the survey is entirely voluntary and you are welcome to withdraw at any time.

ATTENTION: This survey contains questions that may cause you to reflect on past emotional events. If answering these questions has caused you to experience any kind of distress or made you feel uncomfortable in any way, please contact the National Suicide Prevention Lifeline number at 1-800-273-8255 or UCF Counseling and Psychological Services at (407) 823-2811. There is no charge for either hotline. Additional material may be found at https://suicidepreventionlifeline.org/talk-to-someone-now/.

Thank you for your time. By clicking next you are agreeing to participate in this survey. If you have any comments, questions, or concerns, please contact the project leader Chad Collins at Ccollins980@knights.ucf.edu or the supervising faculty Dr. Harry Weger at harry.weger@ucf.edu

SCREENING QUESTIONS

Survey Eligibility
Nominal Scale, Yes/No

SQ1 Are you over the age of 18?
SQ2 Are you a college student?
SQ3 Do you have one or more siblings?

TRAUMA MEASURES

Trauma Presence
Nominal Scale, Yes/No

"In your assessment, would you characterize your relationship with one or more of your siblings to have been traumatic, uncharacteristically violent, or uncharacteristically abusive?"

- If "No" is selected, participants move past the remaining trauma measures straight to RISQ measures.

Scale of Negative Family Interaction (Simmonelli, Mullis, & Rhose, 2005)

Lifetime Frequency, Ratio scale

- Never
- 1-2 times
- 3-6 times
- More than 7 times

"Sibling Behavior Indicate how often a sibling in your family engaged in the following behaviors by clicking the appropriate number, according to the scores below. The columns refer to ***all sisters and brothers***, including all biological, adoptive, foster, half, or stepsiblings, or any child and/or adolescent who lived with your family. If you have more than one sister or brother, your answer should reflect the ***greatest amount*** that any sibling engaged in that behavior."

SNFI 1	Made fun of you in a hurtful way
SNFI 2	Screamed at you
SNFI 3	Swore or cursed at you
SNFI 4	Said things to hurt you
SNFI 5	Made threatening gestures
SNFI 6	Threatened to harm you
SNFI 7	Spanked you
SNFI 8	Pushed, shoved, or pulled you
SNFI 9	Threw a hard object at you
SNFI 10	Hit you with an object.
SNFI 11	Hit you with a fist and/or punched you
SNFI 12	Slapped you
SNFI 13	Kicked you
SNFI 14	Scratched and/or pinched you
SNFI 15	Pulled your hair
SNFI 16	Bit you
SNFI 17	Beat you up and/or hit you hard repeatedly
SNFI 18	Threw you
SNFI 19	Tried to smother or tried to choke you
SNFI 20	Threatened you with, or used, a knife, gun, or sharp object
SNFI 21	Made sexual comments about you
SNFI 22	Had you expose yourself to him or her
SNFI 23	Intentionally exposed himself or herself to you
SNFI 24	Touched you in a sexual way
SNFI 25	Had you touch him and/or her in a sexual way

SNFI 26 Engaged you in oral sexual contact

Abuser Screening
Nominal Scale

With regard to the behavior reported above, was the sibling older or younger than you?
- Older
- Younger
- Same age

With regard to the behavior reported above, was the sibling a brother, sister, or both?
- Brother
- Sister
- Both

TRAUMA REPORT MEASURES

Eligibility
Nominal Scale, Yes/No

"Did you ever report the abuse to anyone (e.g. family, friends, a counselor)?" If "No" is selected, participants move past the remaining report measures straight to RISQ measures.

Report Measures
Nominal Scales

To whom did you report your sibling abuse? Please select all that apply.
- Family
- Friends
- Teachers/Professors
- Therapist/Counselor
- Other

How much did you collectively disclose to those parties selected above?
- A great deal
- A lot
- A moderate amount
- A little
- None at all

Did the person(s) to whom you reported believe you?
- Yes
- Partially
- No

What kind of support or advice did you receive on account of reporting your sibling abuse? Please select the answer that ***best*** applies.
- I was told to ignore the abuse
- I was told to reconcile with my abuser
- I felt shamed and stigmatized
- They did not believe me
- I was given thoughtful/helpful advice
- Other

RISK TAKING BEHAVIORS

RISQ Scale (Sadeh & Baskin-Sommers, 2017)

Lifetime Frequency, Ratio scale

- Never
- 1-2 times
- 3-6 times
- More than 7 times

"Please respond to the following measures per the directions. How many times total have you done any of these behaviors in your ***life***?"

RISQ 1 Thought about killing yourself
RISQ 2 Tried to kill yourself
RISQ 3 Drank alcohol until you blacked out or passed out
RISQ 4 Bought marijuana
RISQ 5 Used marijuana
RISQ 6 Bought harder drugs (e.g. meth, heroin, cocaine)
RISQ 7 Used harder drugs (e.g. meth, heroin, cocaine)
RISQ 8 Had sex
RISQ 9 Had unprotected sex with someone you just met or did not know very well

"Please respond to the following measures per the directions. How many times total have you done any of these behaviors in your ***past month***?"

RISQ 1 Thought about killing yourself
RISQ 2 Tried to kill yourself
RISQ 3 Drank alcohol until you blacked out or passed out
RISQ 4 Bought marijuana
RISQ 5 Used marijuana
RISQ 6 Bought harder drugs (e.g. meth, heroin, cocaine)
RISQ 7 Used harder drugs (e.g. meth, heroin, cocaine)
RISQ 8 Had sex
RISQ 9 Had unprotected sex with someone you just met or did not know very well

"I do this behavior to stop feeling upset, distressed, or overwhelmed."
6-point Scale

- I've never done this
- Disagree
- Slightly disagree
- Neither disagree nor agree
- Slightly agree
- Agree

RISQ 1 Thought about killing yourself
RISQ 2 Tried to kill yourself
RISQ 3 Drank alcohol until you blacked out or passed out
RISQ 4 Bought marijuana
RISQ 5 Used marijuana
RISQ 6 Bought harder drugs (e.g. meth, heroin, cocaine)
RISQ 7 Used harder drugs (e.g. meth, heroin, cocaine)
RISQ 8 Had sex
RISQ 9 Had unprotected sex with someone you just met or did not know very well

"I do this behavior to feel excitement, to get a thrill, or to feel pleasure."
6-point Scale

- I've never done this
- Disagree
- Slightly disagree
- Neither disagree nor agree
- Slightly agree
- Agree

RISQ 1 Thought about killing yourself
RISQ 2 Tried to kill yourself
RISQ 3 Drank alcohol until you blacked out or passed out
RISQ 4 Bought marijuana
RISQ 5 Used marijuana
RISQ 6 Bought harder drugs (e.g. meth, heroin, cocaine)
RISQ 7 Used harder drugs (e.g. meth, heroin, cocaine)
RISQ 8 Had sex
RISQ 9 Had unprotected sex with someone you just met or did not know very well

Problem Measures
Nominal Scale, Yes/No

"Did any of these cause you any problems such as: going to the hospital?"

"Did any of these cause you any problems such as: legal trouble?"

"Did any of these cause you any problems such as: problems at work?"

"Did any of these cause you any problems such as: problems at school?"

"Did any of these cause you any problems such as: problems with family?"

COMMUNICATIVE SOCIAL ADAPTABILITY

Communicative Social Adaptability Scale (Duran, Spitzberg, & Hurt, 1987)
5-point Scale

- Never true of me
- Rarely True of me
- Sometimes true of me
- Often true of me
- Always true of me

"Select the statement that best reflects your self-assessment with regard to the statements below."

CSA 1 I like to be active in different social groups (1)
CSA 2 I try to make other people feel important (2)
CSA 3 When I am anxious, I often make jokes (4)
CSA 4 I find it easy to get along with new people (5)
CSA 5 I often make jokes when in tense situations (6)
CSA 6 I am aware of how intimate my self-disclosures are (7)
CSA 7 I feel nervous in social situations (8)
CSA 8 I know how appropriate my self-disclosures are (9)
CSA 9 When I embarrass myself, I often make jokes about it (10)
CSA 10 My voice sounds nervous when I talk with others (11)
CSA 11 I try to be warm when communicating with another person (12)
CSA 12 I am relaxed when talking with others (13)
CSA 13 I disclose at the same level that others disclose with me (14)
CSA 14 When someone makes a negative comment about me, I respond with a witty comeback (15)
CSA 15 When I self-disclose, I know what I am revealing (16)
CSA 16 I enjoy socializing with various groups of people (17)
CSA 17 I am aware of how intimate the disclosures of others are (18)
CSA 18 While I am talking, I think about how the other person feels (19)
CSA 19 I enjoy meeting new people (20)
CSA 20 I do not "mix" well at social functions (21)
CSA 21 People think I am witty (22)
CSA 22 I am verbally and nonverbally supportive of other people (23)
CSA 23 While talking, my posture seems awkward and tense (24)
CSA 24 I try to make other people feel good (25)
CSA 25 In most social situations, I feel tense (26)

DEMOGRAPHIC QUESTIONS

"Please respond to the following demographic items."

What is your age?

- _____

What year are you in college?

- First-year
- Sophomore
- Junior
- Senior
- Graduate student

What state is your college located in?

- _____

What is your gender identity?

- Male
- Female
- Not listed
- Prefer not to answer

What is your race?

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Mixed Race
- Not listed _____

APPENEDIX C: IRB OUTCOME LETTER

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

January 28, 2019

Dear Chad Collins:

On 1/28/2019, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study, Category Exempt #2
Title:	Sibling Trauma and Social Adaptability and Outcomes in College
Investigator:	Chad Collins
IRB ID:	STUDY00000024
Funding:	None
Grant ID:	None

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Kamille Chaparro
Designated Reviewer

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