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# DRUG INITIATION HABITS AS PREDICTED BY SIBLING CLOSENESS IN DIVORCED AND NONDIVORCED FAMILIES

ANNA JO HERWIG
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Reviewed and approved* by the following:

Jenae M. Neiderhiser
Distinguished Professor of Psychology and Human Development and Family Studies
Thesis Supervisor

Jeffrey Love
Teaching Professor of Psychology
Honors Adviser

* Electronic approvals on file in the Schreyer Honors College.

# ABSTRACT

**Background:** In recent decades, divorce has become an increasingly common part of modern relationships. It is widely recognized that divorce does not just impact the couple in the relationship—children of divorce are their own distinct population uniquely affected by what can often be a traumatic event. In fact, over one million children in the United States experience the divorce of their parents each year. (Fagan & Churchill, 2012). With this trend in mind, the relevance of understanding the impact of divorce on children cannot be overstated, especially as it pertains to the prevention of drug use and other risky behaviors. The present study explores the link between divorce and drug and alcohol initiation habits in adolescents and the possible effects of sibling closeness of substance use initiation. Analyzing data from the Nonshared Environment in Adolescent Development (NEAD) project, a study of 720 adolescent siblings and their nondivorced (*n*=287) divorced and divorced and remarried (*n*=421) parents followed into young adulthood, I examined the effects of divorce during childhood on substance use during adolescence. The younger siblings of divorced families were expected to report greater closeness with their older sibling in addition to a greater frequency of drug initiation when compared to the younger siblings from nondivorced families. **Results:** Age and age difference were positively associated with drug initiation. Controlling for these factors, however, divorce status of the family did not alter the relationship between drug initiation and sibling closeness. These results show a lack of support for the hypothesis that sibling closeness following a divorce increases drug initiation in adolescents and indicate a need for future research in this area.

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# Chapter 1

## Introduction

A major gap in the existing literature is how divorce impacts children's relationship with their siblings. To expand the body of research on adverse life events, including divorce, and sibling relationships, the present study seeks to examine the role of divorce in boosting sibling closeness and drug initiation among adolescents. The role of the older sibling as a socializing agent for the younger sibling underlies the present hypothesis that siblings who benefit from a closer relationship following a major life event such as a divorce are more likely to initiate drugs. This hypothesis was explored in the context of a previous body of literature which focuses more on adolescent development and genetic and environmental factors.

Early research on the consequences of divorce on the individual child suggested an extensive array of negative consequences for the child (Hawkins & Lloyd, 1976). This makes sense—early research in this area was being conducted during a time when it was fairly commonplace for parents to stay married for the sake of their children and the intactness of the family (Wilcox, 2009). However, more recent research reveals that an amicable divorce can sometimes be better for a child than if they were to grow up in a hostile household environment with married parents (Mooney, Oliver, & Smith, 2009). These changing attitudes explain the rise of complex family structures.

With the mainstream perspective on divorce gradually shifting, other researchers have sought to examine a wider array of consequences of divorce on children that are not entirely negative. For example, previous research indicates that divorce can result in increases in sibling

closeness as a result of the experience of going through such a major life event together (Abbey & Dallos, 2004; Perricone, Fontana, Burgio, & Polizzi, 2014). While this effect has the potential for good, in the context of the present study, this is not necessarily positive. Siblings are likely to inform one another's drug habits and increased closeness only serves to strengthen the likelihood of that happening.

The following review of the literature will build off these findings to incorporate some of the social, cognitive, genetic, and environmental factors which may inform drug initiation in adolescents. These studies are foundational to our understanding of how divorce impacts children and how drug initiation is related to the relationship between older and younger siblings. First, an examination of the literature on social contagion theory will lend support to the idea that older siblings teach younger siblings drug initiation habits and that close sibling relationships may provide the environment needed for the social learning. Additional aspects of adolescent development related to anxiety and depression and cognition will also be discussed as it relates to drug initiation outcomes in divorced families. Furthermore, an exploration of genetic and environmental influences will offer further insight on the conditions conducive to adolescent drug initiation. As a final consideration, the following review will discuss adolescent resiliency as they impact the sibling relationship.

**Social contagion between siblings**

Social contagion theory is prominent in the literature and has demonstrated a positive relationship between learned drug use and delinquent relationships with peers and siblings. Social contagion theory can be defined as the process by which attitudes and behaviors are transmitted through group interaction and positive reinforcement (APA Dictionary of Psychology; Benson & Gresham, 2007). For the purposes of the present study, the contagion is

occurring within the sibling relationship, a powerful socialization mechanism. The sibling relationship is particularly unique in that siblings do not choose this relationship like they choose friendships. While peer pressure is an important force for adolescents learning about drugs and alcohol, sibling influence is different in that is not as easily avoidable (Rowe & Gulley, 1992). Sibling influence may be a stronger influence than peer influence because, for the most part, adolescent siblings cannot end the relationship if they do not like how their sibling is influencing their choices as they share a household and a family. Hence, the influence siblings have on one another can be more pervasive, influential, and long-lasting than any peer relationship. Social contagion is a critical outcome of peer pressure, but its presence in sibling relationships in the context of learning to initiate drugs and alcohol may be even more influential.

Rule breaking behavior in particular has been identified as one of the major behaviors impacted by siblings (Slomkowski et al., 2009). These results point to a likely relationship between deviance and sibling relationships in the context of drug initiation. Furthermore, it has been demonstrated that siblings that are closer in age are more similar in their substance use (Samek, 2011). Ostensibly this is because siblings that are closer in age have closer relationships with more shared experiences. This research provides a strong case for the importance of aspects of the sibling relationship on deviant behavior such as drug and alcohol initiation.

Two dimensions of the sibling relationship have been identified as indicators of social contagion between siblings: warm mutual relationships and frequency of contact with mutual friends (Rowe & Gulley, 1992). It is likely that siblings who have a warmer sibling relationship spend more time with one another and would also be more prone to accepting the advice or instruction of that sibling. According to Rowe and Gulley, it is also likely that siblings who have warmer relationships share similar “routine activities” which offers greater opportunity for

siblings to engage in deviant behaviors. Mutual friendships, especially when these friendships are with groups that encourage deviancy, are likely to be a powerful contributor to drug and alcohol initiation because siblings would be susceptible to similar levels of peer influence and access to substances from those peers. While the present study looks specifically at empathy and companionship as indicators of warmth in the sibling relationship, both factors remain of critical importance to the initiation of drugs and alcohol.

As alluded to earlier, some research has found a relationship between divorce and increased sibling closeness. More broadly, it has been suggested that the sibling relationship is influenced not only by genetic factors that bond siblings together, but by simply sharing experiences, including the family environment (Howe, Aquan-Assee, Bukowski, Lehoux, & Rinaldi, 2001). Divorce is a significant life event and a shared experience which contributes to relationship-building between siblings. Therefore, it is reasonable that a divorce in the family may be a bonding factor in the sibling relationship.

Additional research supports this idea, arguing that children involved in some kind of trauma view their older sibling as a resource for coping with the event. A study by Perricone et al. (2014) found that 61% of children in the study relied on their older sibling to share the most difficult experiences of their lives. This finding highlights the role of adverse life experiences in augmenting the sibling relationship.

**Effects of Divorce on Adolescent Development**

Of the research that has looked specifically at the relationship between divorce and subsequent drug initiation by the child, most have identified divorce as a major risk factor for adolescent substance use (Amato & Keith, 1991; Kirby, 2002; Fergusson, Horwood, & Lynskey, 1994). The experience of going through a divorce has even been found to be more impactful as a

risk factor for adolescent substance use than current and prior parental substance use or perceived stress (Jackson, Rogers, & Sartor, 2016). In other words, the literature suggests that divorce can be an important predictor of substance use in children and adolescents.

Though the majority of children of divorce lead healthy adult lives without major psychological issues, it is unquestionable that anxious or depressive symptoms during the stressful period of divorce are commonly experienced (Zeratsion et al., 2013; Schaan, Schulz, Schächinger, & Vögele, 2019; Hoyt, Cowen, Pedro-Carroll, & Alpert-Gillis, 1990). These children are at a heightened risk for engaging in risky behaviors such as premature drug or alcohol initiation because substance use and mental health problems tend to co-occur (Chambless, Cherney, Caputo, & Rheinstein, 1987; Grant & Hartord, 1995; Helzer & Pryzbeck, 1988; Hesselbrock, Meyer, & Keener, 1985; Kessler et al., 1994). Anxiety and depression may also be connected to susceptibility to peer pressure (Blöte, 2016). These compounding factors can help to explain some of illegal drug initiation among adolescents.

**Adolescence as a Sensitive Period**

The divorce of parents during adolescence can be particularly momentous. This is especially the case during early adolescence (Zeratsion et al., 2013). Adolescents during this stage of their development are more vulnerable to the negative impacts of adverse events like divorce both in terms of their decision making and in terms of their ability to regulate emotions. Therefore, developmental considerations are crucial to unlocking behavioral aspects of an adolescent's response to an adverse life event.

Studies on divorce also support the idea that divorce increases the likelihood of risky behavior during adolescence (e.g. Waldron et al., 2013 & Needle, Su, and Doherty, 1990). This, compounded with a still-developing brain, creates a circumstance where drug and alcohol use are

more likely to occur. These risky behaviors can be explained by the lack of complete brain maturation during adolescence in which impulsivity and lack of emotional regulation, among other things, work to make an adolescent more susceptible to poor decision making (Reyna & Farley, 2006). Egocentrism and sensation seeking are common characteristics found during adolescent development which are implicated in the initiation of risky behaviors such as substance use, for instance (Arnett, 1992).

More importantly for the purposes of the present study, however, is that the same impairment which impacts their judgement about risk-taking behaviors also increases adolescent's susceptibility to peer-influences, including the influence that older siblings can have on younger siblings. Some have suggested that this is due to a deficiency in the cognitive control system and an increase sensitivity to the reward system which values risky behavior (Albert, Chein, & Steinberg, 2013). Such deficits can explain why adolescents may be unable to resist the incredibly powerful force of socialization in a sibling environment. One can speculate that this would be even more evident in an environment where emotions are particularly heightened, such as with a divorce in the family.

Finally, past research on the predictors of susceptibility to peer pressure indicates that depressive symptoms are important to consider when assessing an adolescent's ability to resist peer pressure (Lebedina-Manzoni & Ricijas, 2013). With depressive symptoms in children as a noted outcome of a divorce, it is important to consider how all three factors—depressive symptoms, adolescent cognitive development, and divorce may coincide to encourage substance initiation among young people. In other words, susceptibility to peer pressure from friends and older siblings points not only to a negative outcome of anxiety and depression, but also to how uniquely the brain functions during adolescence.

**Genetic and Environmental Factors on Drug Initiation**

Shared genetic backgrounds in siblings play a role in the acquisition of alcohol and drug habits. Studies have shown that there are moderate to substantial genetic influences on substance initiation in siblings (Rhee, Hewitt, Young, et al., 2003). Specifically, genetic influences on substance initiation have been shown to overlap with the genetic influences on continued use or abuse (Lynskey, Agrawal, Heath, 2010). Studies have also found that this correlation is most prominently seen in regard to cannabis and illicit drugs, though the evidence to support this claim is modest (Agrawal, Neale, Jacobson, Prescott, Kendler, 2005; Gillespie, Neale, & Kendler, 2009). The demonstration of heritability across stages of substance use points to the importance of initiation to future substance disorders and therefore the importance of understanding the genetic factors that contribute to initiation.

However, it has also been demonstrated that while genetics are important to consider when examining the potential for substance abuse in siblings, environmental factors play a more important role in initiation of substance use (Agrawal & Lynskey, 2008; Derringer, Krueger, McGue, & Iacono, 2008). In other words, independent from genetic similarity factors which might predispose siblings to initiate alcohol or drugs, a shared environment in which siblings grow up in is much more powerful of a predictor of substance initiation (Rende et al., 2005). This has important implications, given that the lead-up to a divorce, the legal separation, and the aftermath of such an event in a family has the potential to create significant problems for the quality of the home environment.

According to a study by Neiderhiser, Marceau, and Reiss, it is a combination of both genetic and environmental factors which can be identified as key mechanisms influencing child drug initiation in families (2013). Specifically, four factors—two genetic and two

environmental—were found to explain drug initiation. Coercive family cycles and lack of self-disclosure from adolescents constituted two of the genetic influences on drug initiation, while sibling deviancy training and poor parental monitoring were the environmental factors related to drug initiation. The multiple pathways in which environmental and genetic factors overlap to create the conditions for drug initiation described in this study provides a more nuanced view on drug initiation habits in adolescents.

**Resiliency**

It is important to highlight here that children and adolescents are capable of a tremendous amount of resilience in the face of adverse experiences such as divorce. Adolescents build the capacity for resilience from a variety of sources; important among them being family members (Smith and Carlson, 1997). This understanding does not automatically challenge the idea that adolescents would be more likely to initiate drugs or alcohol, because resiliency may also be a quality which brings siblings together and strengthens the bond that results in social learning.

It has also been demonstrated in the literature that one sibling's ability to respond with resilience to an adverse event within the family does not necessarily relate to how the other sibling will respond (Henderson, Hetherington, Mekos, & Reiss, 1996). In other words, one sibling could turn to drug and alcohol to cope, while the other feels no such compulsion. Again, this does not necessarily challenge the hypothesis of the present study, as it is entirely plausible that one sibling's poor response following a divorce could be enough to influence the other sibling in their choices regarding drugs and alcohol.

While it is certainly possible that divorce in-and-of-itself, the impact of a divorce during the vulnerable period of adolescence, or depressive and anxiety symptoms may work together or individually to explain increased substance use in adolescents following a divorce, a significant

component of adolescent drug and alcohol use can be attributed to the learning that is done from one sibling to the other. That is why, for the purpose of this study, the quality of sibling relationships will remain the focus of exploration, as drug and alcohol initiation habits in adolescence following a divorce create shared environmental factors worth further consideration.

Ultimately, a review of the diverse body of literature that exists on adolescent development as it relates to substance use, social learning, and the impact of divorce on the family demonstrates that divorce impacts children differently. The outcome for siblings compared across studies vary greatly depending on genetics, the environment, and individual differences. With this context in mind, the present study seeks to add to the growing body of divorce literature by analyzing sibling relationships and their influence on drug or alcohol initiation.

# Chapter 2

## Purpose of the Present Study

The purpose of the present study is to test the association between sibling closeness and alcohol and drug initiation when differentiated by divorced and non-divorced families. The hypotheses are as follows:

1) Siblings in divorced families will demonstrate greater closeness as measured by empathy and companionship.
2) Greater closeness between siblings will be accompanied by an increased rate of alcohol and drug initiation.

# Chapter 3

# Methods

## Participants

Twin and nontwin siblings who participated in the Non-shared Environment in Adolescent Development (NEAD) project make up the sample for the present study (Neiderhiser, Reiss, & Hetherington, 2007). This sample population consists of 720 same-sex monozygotic (N =93 pairs) and dizygotic twins (N=99 pairs) and full siblings (N =95 pairs) in nondivorced families and full siblings (N =182 pairs), half siblings (N =109 pairs), and genetically unrelated siblings (N =130 pairs) in stepfamilies. All stepparents were married for 5 or more years in order to be included in the study.

Siblings were same-sex adolescents who were no more than four years apart in age with the mean age for Child 1 reported as 13.5 years and the mean age for Child 2 reported as 12.1 years at Time 1 and a mean age of 16.2 years and 14.7 years for Child 1 and Child 2 respectively at Time 2. Half the sample was male, and a majority were Caucasian (94% of mothers and 93% of fathers). Families were primarily middle-class with the average family income at Time 1 ranging from $25,000 to $35,000. In total, there were 421 divorced families and 287 intact families included in the study. See Neiderhiser et al. (2007) or Reiss et al. (2000) for more detail on the sample and measurement of the NEAD project.

## Measures

### *Sibling Closeness*

The degree of sibling closeness was measured using the Sibling Inventory of Behavior (SIB), a 32-item measure assessing the frequency of behaviors (SIB; Schaefer & Edgerton, 1981). The

present study used SIB data only relating to the younger child's rating of their relationship with the older child, though the SIB measure utilizes a 6-scale structure incorporating the mothers', fathers, and both siblings' self-report. Two subscales of companionship ($\alpha = .88$) and empathy ($\alpha = .89$) representing positive behaviors between siblings were used as indicators of sibling closeness. Sibling closeness was measured using a 5-point Likert scale from 1 (never) to 5 (always). Higher scores indicate increased frequency of behavior.

***Drug Initiation***

Drug initiation was assessed by the Jessor Substance Abuse Survey Form (Elliott & Huizinga, 1983; Jessor, Donovan, & Widmer, 1980; Jessor & Jessor, 1977). The initiation of alcohol, marijuana, or illicit drugs including pills, crack, cocaine, LSD, PCP, heroin, mushrooms, inhalants, or methamphetamines was recorded at Time 1 or Time 2. The Jessor survey measures frequency of alcohol and drug use, attitudes of parents and friends towards alcohol and drugs, and how alcohol or drug use has affected the respondent using Likert scales which vary in format. Participants respond to a series of questions such as "have you used" and "how often have you used." About half (47%) of siblings did not initiate any drug (N= 338).

***Divorce Status***

Divorce status was indicated using a nominal scale where 1 = Yes and 0 = No.

***Covariates***

Data examined as potential covariates include age of Child 2, age difference between Child 1 and Child 2, and Child 2 sex. These confounding variables were removed from the data analysis to distinguish the modifying role of divorce.

**Procedure**

Data was collected in three waves as a part of the NEAD/YASS studies. Data from the study participants was collected in three phases. The first phase of data collection, Time 1, occurred in 1988 with all 720 of the recruited families participating. Most families at Time 1 were visited twice by two interviewers. Time 2 data collection occurred three years later in 1991. At that time, 434 families were still eligible to participate based on the inclusion criteria which required that the adolescent had lived in the home for at least half of the time in the last year. All families at Time 2 were visited by one interviewer. During visits at both Time 1 and Time 2, parents and adolescent siblings participated in a questionnaire and were also videotaped. Participants provided additional questionnaire data by completing a questionnaire ahead of the planned visits. Video footage obtained during the video captured family members discussing areas of disagreement in various combinations. The recorded interactions were assessed using a 5-point Likert scale.

For this study, we used Time 1 and Time 2 sibling data. Correlation and regression analyses were then conducted using SPSS Statistical software to examine the relationship between empathy and companionship in sibling pairs and drug initiation when moderated by divorce versus non-divorced family status and controlling for demographic information such as age, age difference between siblings, and sex.

# Chapter 4

## Results

Table 1 summarizes the results of the regression analysis pertaining to the interaction between empathy and divorce on drug initiation in adolescence. The overall model was significant, F(5,700) = 16.35, p = .00, R^2 = .11. The age of the younger child (β = .33, *p* = .00) and the difference in age between the siblings (β = .09, *p* = .04) were positively and significantly associated with the number of drugs used, indicating that the older the younger sibling is and the greater difference in age between siblings, the more likely they are to have initiated a greater number drugs. Controlling for age and age difference however, divorce status did not moderate the association between sibling empathy and the initiation of drugs (β = -.01, *p* = .85). Additionally, there was no significant relationship between divorce family status and drug initiation (β = .06, p = .16) or positive ratings of sibling empathy and drug initiation (β = .03, p = .59).

Table 2 summarizes the results of the regression analysis pertaining to the interaction between companionship and divorce on drug initiation in adolescence. The overall model was significant, F(5,700) = 17.10, p = .00, R^2 = .11. Once more, the age of the younger child (β = .33, p = .00) and the difference in age between the siblings (β = .09, p = .04) were positively and significantly associated with the number of drugs used, indicating that the older the younger sibling is and the greater difference in age between siblings, the more likely they are to have initiated a greater number drugs. Controlling for age and age difference however, the divorce status did not moderate the association between sibling companionship and the initiation of drugs (β = .02, p = .68). Once again, there was no significant relationship between divorce family

status and drug initiation (β=.06, p = .14) or positive ratings of sibling companionship (β = 0.5, p = .37).

# Chapter 5

## Discussion

The purpose of this study was to explore the relationship between siblings as it pertains to drug initiation as well as how the role of divorce in bringing siblings together in order to contribute to the body of researching surrounding divorce. A large swath of research indicates that siblings can serve in the role of teacher, sharing their drug or alcohol habits with their siblings (Slomkowski et al., 2009; Samek, 2011; Rowe & Gulley, 1992). This phenomenon has been explained by numerous studies pointing to shared environmental factors such as friend groups or access to substances as well as by virtue of the uniqueness of sibling relationships. To build on this research, the present study sought to understand whether the population of children of a divorce would demonstrate elevated levels of alcohol and drug initiation and an increased response in empathy and companionship measures. Contrary to the study hypotheses, we did not find a significant relationship between sibling closeness and drug initiation as dictated by divorced versus non-divorced family status.

An interesting finding to have emerged from this study is the significant relationship between age difference and drug use. In other words, a larger difference in age between the younger child and the older child meant increased reporting of drug or alcohol initiation in the younger child. It is commonly understood that as children progress through their pre-teen and teenage years, the likelihood of trying drugs or alcohol increases due to factors like increased access, party culture, and peer pressure. Therefore, it is possible that children with older siblings are exposed to drugs and alcohol earlier in life, given that older teenagers tend to have more

exposure than younger teenagers. This relationship between sibling age difference and likelihood of drug and alcohol initiation is an interesting and surprising finding, however, particularly because many would speculate that siblings closer in age would tend to exhibit closer relationships.

**Possible explanations and potential limitations**

There are several potential explanations for the lack of significant associations found. First, divorce is different for every family. The quality of the divorce—whether it was prolonged and hostile or easy and amicable—could have moderated the impact the divorce had on the sibling relationship. As previously discussed, there is evidence to suggest that divorce might not always seriously impact the child's mental or physical healthy in any consequential way. With that in mind, it is entirely possible that an amicable divorce could have little to no impact on the sibling relationship. The results of the present study suggest that it is equally possible that even the most difficult divorces, which have been shown to negatively impact child emotional wellbeing, decision-making, and a host of other quality of life factors, could have little to no bearing on the sibling relationship as well. Rather, how a child responds to the divorce of their parents is an individualized process.

Furthermore, it is possible that there is a factor of age when the divorce occurred that may influence how the child reacts to such a major life event. While all children of divorce within the NEAD sample were examined for the purposes of this study, it is likely that some of the children experienced their parent's divorce as young children whereas some of the children in the sample may have experience their parent's divorce in early adolescence. There has been evidence to suggest that there is a significant difference in how children perceive their parent's divorce depending on their stage of progression through childhood and adolescence (Storksen et

al., 2006). It therefore follows that the relationship between siblings in the sample could have been impacted by divorce differently depending on how old the sibling pairs were at the time of divorce. Perhaps sibling pairs in the sample who experienced divorce as young adolescents would show a stronger relationship following a difficult divorce whereas sibling pairs whose parents divorced early in their lives would not necessarily feel the same compulsion to rely on their sibling more closely during a difficult time.

There were certain limitations to the design of the study which may offer context to the results. Reports of substance use on the JESSOR Substance Abuse Survey Form typically only consisted of alcohol and marijuana. This is not surprising, given that studies continue to demonstrate that nearly all adolescents in developed countries will have tried alcohol before they will have graduated high school and of all the illicit drugs available to adolescents, marijuana is the most prevalent (Bauman & Phongsavan, 1999; Windle, 2003; O'Malley, Johnston, & Bachman, 1998; SAMHSA, 2012). Ultimately, the reality of employing a community sample rather than an at-risk sample of children worked to reduce the number of participants included in the model and narrow the scope of the study. Due to this characteristic of the data set, it was necessary to consider any type of drug use equally, regardless of whether the adolescent had simply tried marijuana or if they were engaging in "harder" drugs like methamphetamines or if they have tried more than one type of illicit drug.

Finally, adolescents tend to not be as forthcoming about using illegal substances. The subjective nature of relying on self-reports from an adolescent population could have influenced the number of children reporting drug or alcohol use. The self-report is a commonly employed method for measuring attitudes and can generally be viewed as valid given the numerous studies which support the claim that adolescent self-report is accurate (Winters et al. 1991; Del Boca &

Darkes, 2009). At the same time, there is literature to suggest that adolescent report of substance use that is infrequent in nature tends to be less accurate (Single, Kandel, & Johnson, 1975). This finding is of particular relevance to the present study, as most of the adolescents in the sample reported low ratings of drug and alcohol initiation.

The self-report method was also utilized to assess the quality of sibling's relationship based on reports of empathy and companionship. For this study, we only used the younger siblings report on their sibling's positive behavior towards them instead of considering how the younger sibling might act towards their sibling. By not taking into account the full sibling relationship, including negative behaviors, the present study was limited in gaining a complete and accurate understanding of how the sibling relationship might impact drug initiation.

**Conclusion**

The results of this study add to the expansion of literature on the topic of how divorce impacts children and the importance of the sibling relationship as a socialization agent, despite the finding that there is no relationship between drug initiation and sibling closeness with the moderating effect of divorce. It may also be interesting to further analyze the role of age difference in sibling relationships and how gap in age may contribute to elements of social learning and drug initiation. Lack of significant results show a need for future research on the impact of divorce in encouraging risk-taking behavior and how siblings may play a role in promoting these behaviors. Divorce is becoming an increasingly relevant occurrence in modern marriages. Special consideration to the consequences of divorce on children, particularly adolescents, is therefore a crucially important area for further investigation.

## Tables and Figures

### Table 1

*Regression Model Predicting Divorce Status to Moderate Association Between Empathy and Initiation of Drugs*

| Variable | | ΔF | B | SE B | β |
|---|---|---|---|---|---|
| Child age | .11 | .00 | .14 | .02 | .33** |
| Age difference | | .04 | .07 | .03 | .09* |
| Divorce status | | | .12 | .08 | .06 |
| Sibling empathy | | | .03 | .05 | .03 |
| Sibling empathy x divorce status | | | -.01 | .07 | -.01 |

*Note*: * $p < .05$, ** $p < .01$.

**Table 2**

*Regression Model Predicting Divorce Status to Moderate Association Between Companionship and Initiation of Drugs*

| Variable | | ΔF | B | SE B | β |
|---|---|---|---|---|---|
| Child age | .11 | .00 | .14 | .02 | .33** |
| Age difference | | .04 | .07 | .03 | .09* |
| Divorce status | | | .12 | .08 | .06 |
| Sibling companionship | | | .05 | .05 | .05 |
| Sibling companionship x divorce | | | .03 | .07 | .02 |

*Note*: * $p < .05$, ** $p < .01$.

**Table 3**

*Correlations for Empathy*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Sum score of all drugs | 1.00 | | | | | |
| 2. Child age | 0.30 | 1.00 | | | | |
| 3. Age difference | 0.02* | -0.30** | 1.00 | | | |
| 4. Divorce status | 0.07 | -0.01** | 0.52 | 1.00 | | |
| 5. Sibling empathy | 0.02* | 0.00** | -0.05** | -0.05** | 1.00 | |
| 6. Sibling empathy x divorce | 0.00** | -0.03** | 0.02* | -0.03** | 0.77 | 1.00 |

*Note*: * $p < .05$, ** $p < .01$.

**Table 4**

*Correlations for Companionship*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Sum score of all drugs | 1.00 | | | | | |
| 2. Child age | 0.30 | 1.00 | | | | |
| 3. Age difference | 0.02* | -0.30** | 1.00 | | | |
| 4. Sibling companionship | 0.07 | 0.00** | 0.00 | 1.00 | | |
| 5. Divorce status | 0.07 | -0.10** | 0.52 | -0.05** | 1.00 | |
| 6. Sibling companionship x divorce | 0.06 | -0.01** | 0.02* | 0.77 | -0.03** | 1.00 |

*Note*: * $p < .05$, ** $p < .01$.

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# ACADEMIC VITA

Anna Herwig
annajherwig@gmail.com

## Education

**Pennsylvania State University – University Park** Graduation date: May 2020
Schreyer Honors College & Paterno Fellows Program
Majors: Psychology and History
Minors: French & Francophone Studies and Global & International Studies

Thesis Title: DRUG INITIATION HABITS AS PREDICTED BY SIBLING CLOSNESS IN DIVORCED AND NONDIVORCED FAMILIES
Thesis Supervisor: Dr. Jenae Neiderhiser

**Trinity College Dublin** Spring 2018
IES Study Abroad Program

## Related Experience

**Hotline Counselor** October 2019-present
Centre Helps
Responsibilities: Provide basic needs resources, short-term counseling, and crisis intervention on 24/7 hotline, supervise new staff to ensure quality of counseling, undergo 180+ hours of training

**Research Assistant** August 2017-present
Research Assistant under Dr. Jenae Neiderhiser
Gene Environment Interplay Across the Lifespan Lab
Penn State University, Psychology Department
Responsibilities: YASS Data checking and entry, contact PA Twin participants, train new RAs

**Teaching Assistant** August 2017-December 2017
Undergraduate Teaching Assistant for Dr. Jeffrey Love
PSYCH 412: Adolescence
Penn State University, Psychology Department
Responsibilities: Taking notes, organizing review sessions, proctoring exams, administrative duties

**Mental Health Practicum Coach** August 2018-March 2019
Practicum student under Dr. Kelsey Quigley
PSYCH 477 & 497: Mental Health Practicum with Children
Penn State University, Psychology Department
Responsibilities: Implement evidence-based Friendship Groups curriculum with referred children who demonstrate difficulty in peer relationships

## Work Experience

**Intern** May 2019-present
Student Engagement Network
Penn State University
Responsibilities: Serve as an ambassador of student engagement, develop curriculum for a freshman seminar course on engagement, host grant information sessions

**Intern** June 2019-August 2019
Admissions Office
Penn State University, Schreyer Honors College
Responsibilities: Compile database of high school profiles, assist with presentations

**Youthful Offenders Program Instructor** February 2019-January 2020

Centre Helps

Responsibilities: Teach court-mandated class to young adults with alcohol related summary offenses seeking expungement, utilize educational model to encourage safer drug & alcohol use, administer CUDIT-R and DAST-10 audits to assess for problematic substance use

**Intern** May 2018-August 2018

Human Resources

Doughmain Financial Literacy Foundation

Responsibilities: Manage intern scheduling and communications, coordinate professional, development workshops, perform administrative tasks

## Leadership

**Donor and Alumni Relations: Alumni Engagement Captain** May 2019-present

Penn State Dance Marathon

Responsibilities: Coordinate the promotion of an in-kind donation initiative among alumni, collaborate with academic colleges to attend alumni-oriented events

**Royalty Committee: University Court Captain** January 2019-October 2019

Penn State Homecoming

Responsibilities: Facilitate the selection of university court members, act as liaison

**Special Events Captain** April 2018-February 2019

Springfield, Benefiting THON

Responsibilities: Assist Special Events chair in planning and executing fundraisers to benefit THON

**Orientation Mentor** January 2017-August 2017

Schreyer Honors College Orientation (SHO Time)

Responsibilities: Lead first-year students through orientation activities, provide mentorship

## Honors, Awards, & Certifications

- Schreyer Academic Excellence Scholarship (2016)
- College of Liberal Arts Tuition Scholarship (2016)
- Dean's List (7/8 semesters)
- Phi Eta Sigma National Honor Society (2016)
- Psi Chi Honor Society in Psychology (2018)
- Margaret Bixler Kolpak Memorial Award (2020)
- Certifications: Stewards of Children (Darkness to Light, 2018); Mental Health First Aid Training & Question, Persuade, Refer Training (National Council for Behavioral Health, 2018); Mandated and Permissive Reporting (PA Child Welfare Resource Center, 2018); Columbia Suicide Severity Rating Scale, C-SSRS (Research Foundation for Mental Hygiene, Inc., 2018