FAMILY ENVIRONMENTAL RISK FACTORS FOR ADOLESCENT SUBSTANCE USE: AN INTEGRATIVE REVIEW OF THE LITERATURE

by

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DEDICATION

This project is dedicated to my wife, Kate, for encouraging me to pursue this journey towards attaining a higher level of education, for supporting me throughout the entirety of this program, and for always believing in me every step of the way.

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TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

LIST OF FIGURES

Figure Page

ABSTRACT

Substance use continues to be an ongoing problem throughout the United States and worldwide. In terms of substance use initiation, adolescence is characterized as an especially vulnerable developmental time period. There are many potential influences that can affect an adolescent's risk for initiating substance using behaviors. One particularly influential factor is the family environment the adolescent is exposed to on a daily basis. The purpose of this project was to summarize the evidence on the topic of adolescent substance use risk factors within the immediate family environment. Following an integrative review guideline, three library databases were searched utilizing a set of key search terms in order to obtain all relevant studies related to this topic. Each relevant research article found in the literature search that met the inclusion and exclusion criteria was included in the review process. Research findings were extracted from these research studies, organized into common categories, and integrative summaries were presented. The results of the review were categorized and presented based on commonly identified influential factors that were examined in the primary studies. As a result of this review, it was concluded that many significantly influential immediate family environment risk and protective factors have been identified in the literature. The significance of these findings and the potential implications for practice, prevention, and research, are discussed.

CHAPTER ONE – INTRODUCTION

Background and Significance

Substance use is a problem that has had negative impacts on society for many years. Currently, it is a growing worldwide problem that needs to be addressed. The negative effects of substance abuse are exerted upon families, individuals, cultures, health care systems, financial systems, and much more. According to the National Institute on Drug Abuse (2017), illicit drugs and alcohol cost the nation a combined 442 billion dollars annually. These costs are related to lost work productivity, motor vehicle accidents, crime, and health care. Furthermore, the number of drug overdose deaths is increasing every year. In the year 2015, over 50,000 deaths related to overdoses were reported (National Institute on Drug Abuse, 2017).

In regards to physical health, substance abuse is associated with many adverse health outcomes and increased healthcare costs (National Institute on Drug Abuse, 2017). For example, substance users are more likely than non-users to contract sexually transmitted diseases, develop cardiac problems, become disabled, and experience premature death (Flemmen et al., 2015). The use of smoked substances, such as marijuana and methamphetamine, has been linked to decreased respiratory function, reduced muscle strength, and reduced aerobic endurance (Cook et al., 2006; Flemmen et al., 2015). Furthermore, intravenous (IV) drug use is associated with an increased risk of contracting human immunodeficiency virus (HIV), hepatitis B, and hepatitis C (National Institute on Drug Abuse, 2017).

In regards to mental health, use of some drugs, especially chronic use, can lead to both short-term, long-term, and potentially permanent changes within the brain. These changes within the brain make substance users more susceptible for developing mental health disorders involving mood disturbances such as anxiety, paranoia, depression, aggression, hallucinations, and more (National Institute on Drug Abuse, 2017). These are just a few examples of the multitude of health problems that can potentially develop from substance use.

Substance use is also associated with increased delinquent behaviors such as increased involvement in criminal activities. Furthermore, those who are involved with substance use are more likely to be associated and involved with gang activity. In regards to costs, more than 61 billion dollars per year are spent on criminal justice system costs related to substance use. Additionally, over 120 billion dollars per year are lost as a result of the lost work productivity related to substance use (U.S. Department of Justice National Drug Intelligence Center, 2011).

In an effort to combat the growing substance abuse problem, research has been conducted about the factors and circumstances surrounding an individual making the decision to use substances for the first time. As a result of this research, it has been reported that a majority of adult substance abusers began abusing drugs for the first time during adolescence and young adulthood. According to the annual survey conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA), a little over half of the new users are under the age of 18 years old (Bose et al., 2016).

Additionally, it has been shown that several cases of adolescent substance use disorders (SUD) persist into adulthood (Bauman & Phongsavan, 1999; Riala et al., 2004). Therefore, in order to decrease the prevalence of lifelong substance use, intervention in early adolescence before problems develop is critical.

Intervention in early adolescence is critical due to this period of development characterized as being more vulnerable and susceptible to experimenting with substance use. Adolescents are more susceptible to substance use experimentation due to the considerable changes in brain development that take place during this period. Specifically, developmental changes occur during adolescence to the frontal cortex and limbic system. The frontal cortex is not fully developed in adolescence, resulting in a decreased ability to inhibit responses to stimuli, decreased rationale decision making capability, and decreased behavioral control (Crews et al., 2009). Furthermore, the limbic system is also developing and is thought to be associated with reduced reward sensitivity; leading adolescents to seek higher levels of novelty and external stimulation (Crews et al., 2007; Crews et al., 2009). A component of the limbic system, the nucleus accumbens, generates pleasure responses and reward cycles in response to the increased released dopamine associated with addicting drugs such as nicotine, alcohol, stimulants, opiates, and more. As adolescents abuse substances that increase dopamine to abnormally high levels, the brain compensates by decreasing natural production. As a result, the brain becomes dependent on the substance to maintain normal level of dopamine production (Di Chiara & Imperato, 1988). Furthermore, due to substance use disrupting normal brain development during this period, substance use initiated during this period is likely to have

permanent long term adverse effects on the brain, such as functional implications and a lack of inhibitory control that persists throughout adulthood (Crews et al., 2009).

Given the vulnerable nature of adolescence, there is focus on preventing adolescents from deciding to use drugs for the first time. This is evidenced by the creation of the Healthy People 2020 objectives that aim to reduce the proportion of adolescents who report using substances, increase the proportion of adolescents who report never using, and increase the proportion of adolescents who disapprove of substance use (Office of Disease Prevention and Health Promotion, 2014). Additionally, there is focus on identifying family environmental characteristics that act as either protective or risk factors for potential adolescent substance use development. The basic idea is that by decreasing the amount of adolescent substance users, the amount of future adult users will decline. However, given that adolescents are still continuing to use drugs for the first time each and every day, more research into possible reasons and risk factors for initiating substance use in adolescence is warranted.

Incidence, Prevalence, and Burden of Substance Use

Illicit substance and alcohol use is a significant problem in the United States. Despite many initiatives and actions taken to combat this problem, survey data collected by SAMHSA do not show much improvement between the current trends and statistics versus survey data collected in years past. In fact, illicit drug use has been increasing in the United States. For example, marijuana and methamphetamine use has increased since prior year surveys. In 2013, nearly 20 million Americans reported using marijuana as

opposed to 14.5 million in 2007. Furthermore, in 2013, 600,000 Americans reported using methamphetamine compared to 353,000 in 2010 (National Institute on Drug Abuse, 2015). Survey data reported in 2016 cannot be accurately compared to previous years due to the potential effects of questionnaire changes (Bose et al., 2016). However, it is important to mention that marijuana is mainly responsible for this increase in the illicit drug category as a whole, whereas other illicit drug trends have remained fairly consistent (Bose et al., 2016).

Illicit drug and alcohol use also has a high incidence and prevalence rate. According to SAMHSA data, 27.1 million Americans reported being current illicit drug users (Bose et al., 2016). This amount represents 10.1 percent of the population. Furthermore, 2.2 million of these individuals are adolescents aged 12 to 17 year who reported using illicit drugs (Bose et al., 2016). These 2.2 million adolescents who reported using illicit drugs represent 8.8 percent of the entire adolescent population at the time the survey was conducted. The number of adolescents who reported using alcohol were 1 in 10. Furthermore, of these adolescents who reported drinking alcohol, 5.8 percent were binge drinkers and 0.9 percent were heavy drinkers (Bose et al., 2016). As for data related to first-time users, many Americans are choosing to use drugs for the first time each and every day. In a 2013 SAMHSA survey, 2.8 million Americans reported using illicit drugs in the past year for the first time (National Institute on Drug Abuse, 2017). This is equivalent to 7,800 new illicit drugs users each day. Furthermore, over half of these reported new users are under the age of 18 years old. The exact percentage of these new users under the age of 18 represents 54.1 percent of all new illicit drug users.

In terms of lifetime prevalence of substance use disorders, the national epidemiologic survey on alcohol and related conditions found that 9.9 percent of Americans will meet criteria for a substance use disorder in their lifetime (Grant et al., 2016). Amongst the general population, substance use disorders occur more often among men versus women, Caucasians and Native Americans, younger, previously, or never married adults, individuals with a lower educational level, and those of lower socioeconomic status (Grant et al., 2016).

As mentioned previously, substance abuse also poses a significant economic burden on the United States. Based upon national cost estimates, illicit drug use cost the United States economy 193 billion dollars in 2007 (National Institute on Drug Abuse, 2017). This overall estimate is broken down into various subcategories including costs related to crime, health, and lost productivity. It is estimated that illicit drug use cost the United States 61.4 billion dollars related to crime, 11.4 billion dollars related to healthcare expenditures, and 120.3 billion dollars related to lost productivity and labor participation (U.S. Department of Justice National Drug Intelligence Center, 2011). In regards to alcohol, the cost of excessive alcohol use in the United States was estimated to be 249 billion dollars in 2010. This total cost was calculated based on health care expenditures, lost workplace productivity, criminal justice expenditures, and motor vehicle accidents related to alcohol use (see Figure 1; Centers for Disease Control and Prevention, 2016). Furthermore, it is estimated that these cost estimates for illicit drug use and alcohol have likely risen substantially since this data was collected (National Institute on Drug Abuse, 2017).

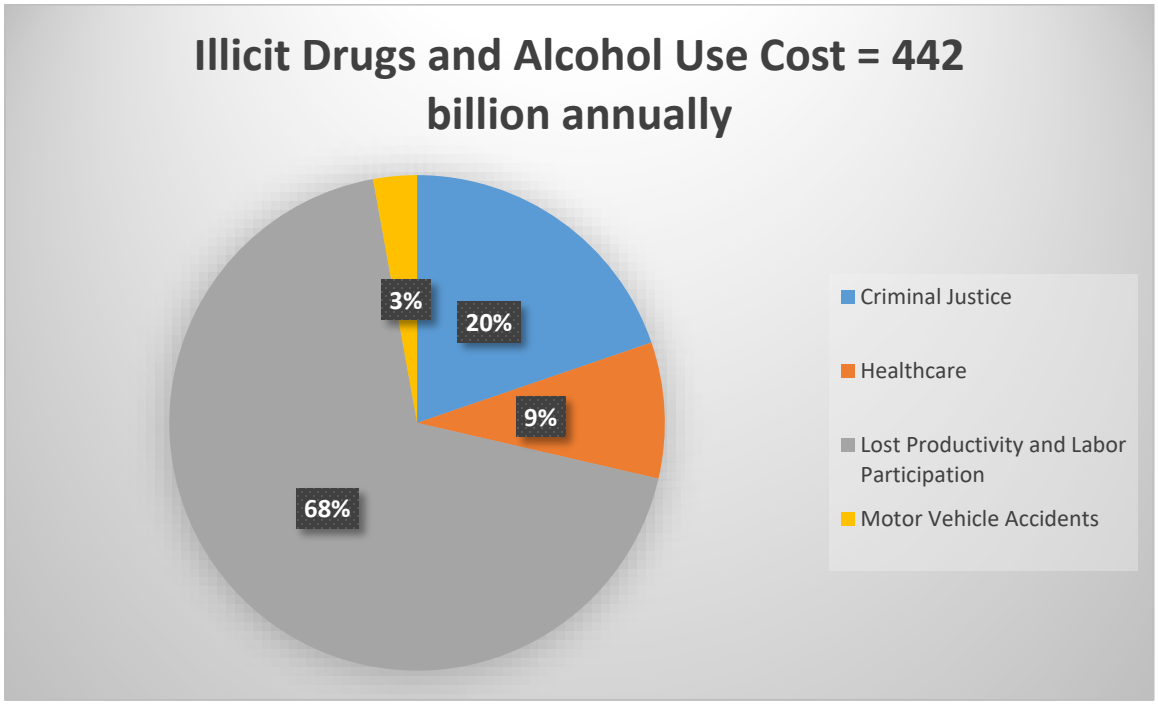

Figure 1. Annual cost of illicit drugs and alcohol use in the United States.

Significance of the Family Environment

In an effort to gain more insight into why adolescents choose to use drugs for the first time, research has been conducted into potential factors that may make an adolescent more, or less likely, to make this choice. As more insight into the factors surrounding this decision grows, the more capable and informed researchers become to propose targeted interventions to prevent an adolescent from choosing to use drugs. Thus, research into these influential factors is crucial to combating adolescent drug use. As a result of research that has been completed so far, many such factors have been identified. Some factors that make an adolescent more likely to use drugs for the first time are external; from influences in their surrounding environment. On the other hand, some factors are

internal, making one adolescent more likely than others to experiment with drugs, regardless of external environmental influences.

Some examples of influential factors that are considered internal and make an adolescent more susceptible to engage in substance use are factors such as, inheriting a genetic predisposition for addiction, attention deficit hyperactivity disorder, a depressive disorder, an anxiety disorder, and other such factors (Whitesell et al., 2013; Kreek et al., 2005). Conversely, examples of external factors that make an adolescent more susceptible to use drugs include being a victim of abuse, being directly exposed to abuse of others, being a victim of bullying, being neglected, being influenced by deviant peer relationships, peer pressure, and exposure to adverse family environment characteristics that tend to make an adolescent more likely to pursue a trajectory towards eventual substance use (Whitesell et al., 2013). Of these external factors, one of the most influential factors is the immediate family environment the adolescent is directly exposed to on a continuous basis.

The influence of the adolescent's immediate family environment is not to be underestimated. It is considered to be one of the most, and perhaps the most, significant influence on subsequent adolescent behavioral outcomes (Nation & Heflinger, 2006). In regards to substance use, exposure to certain adverse family environment characteristics increases the probability that an adolescent will decide to experiment with drugs, and subsequently continue engaging in substance use (Riala et al., 2004). Conversely, continued exposure to certain favorable family environment characteristics increases the likelihood that an adolescent will avoid drugs, say no to drugs, and not engage in

substance use throughout adolescence. As a result of the continued research on the influence of the adolescent's family environment, certain protective factors, and risk factors, have been identified.

Statement of the Problem

Although research has been conducted on the topic of factors related to the development and prevention of adolescent substance use, adolescents are still choosing to use illicit drugs and alcohol. Therefore, generating more knowledge on this topic is paramount to the overall global effort of combating this issue.

Purpose

The purpose of this scholarly project is to summarize the available literature related to family environment characteristics that are correlated with adolescent substance use. Research reviews have been conducted over the years on the topic of family environments, adolescent substance use, and other related risk factors. However, to the best of this author's knowledge, no review has been conducted that focuses solely on the adolescent's immediate family environment and its influence on subsequent adolescent substance use. This project aims to review the literature to describe risk and protective factors based on the results of the primary studies included in the review, and make recommendations for future research and practice.

Definition of Concepts

The following definitions are given in an effort to clarify the key concepts that will be used frequently throughout the remainder of this scholarly project:

1. Substance use: refers to the hazardous or harmful use of psychoactive substances (World Health Organization, 2017). For this project, this includes illicit drugs, alcohol, and tobacco.
2. Family environment: refers to the social climate of a family, including quality of relationships, support, existence of conflict, exposure to poverty, existence of two parents, and other characteristics and influences, specific to each family (Mental Health America, 2013).

Organization of the Remainder of the Project

In chapter 1, background information pertinent to the topic of adolescent substance was presented as well as an explanation on the focus of this project. Chapter 2 will discuss the conceptual and theoretical frameworks used for this project. Next, chapter 3 will discuss the methods used for the review. Then, chapter 4 will present the results of the integrative review of the literature. Lastly, chapter 5 will include a discussion of the results, as well as recommendations for future research, practice, and policy.

CHAPTER TWO – CONCEPTUAL/THEORETICAL FRAMEWORKS

Family Interaction Theory

Family interaction theory serves as the main guiding theoretical framework for this project. This theory suggests that the family, especially the parents, have a direct influence on whether or not their adolescent children end up experimenting with drug use. Specifically, the existence of strong parent-child attachment and bonding is considered protective against substance use and a lack of this bond is associated with an increased risk for adolescent substance use. A strong parent-child bond is described as a supportive and affectionate parenting style, conventional values present among the parents, and parental control over the child. This theory states that such strong parent-child bonds shape the adolescent to have a well-adjusted personality, conventional values, a desire to not associate with substance using peers, and thus infrequently engage in experimental drug use (Brook et al., 1990).

Resiliency Theory

Another guiding theoretical framework for this project is resiliency theory. A core principle of this theory is that exposure to certain risk or protective factors can affect an adolescent's level of individual resiliency and his or her future trajectory in life. An adolescent's level of resiliency can affect his or her ability to overcome future challenges, overcome future exposure to risks, and achieve a positive trajectory or life outcome. For example, in the case of

this project, exposure to more risk than protective factors in the immediate family environment may reduce the adolescent's level of resiliency, reduce the ability to overcome the negative effects of risk exposure, causing him or her to be more vulnerable and likely to pursue a negative trajectory in life, and possibly engage in substance use (Fergus & Zimmerman, 2005).

Social Cognitive/Learning Theory

Social cognitive/learning theory (SC/LT) also serves as a guiding theoretical framework for this project. According to this theory, adolescents do not spontaneously acquire any perception or attitude towards substance use by themselves. Instead, they form a perception of and attitude towards substance use through close observation of those they perceive to be role models in their lives. Thus, if their parents use drugs, or speak favorably about drugs, the
adolescent is likely to develop the same attitude towards drugs. As a result, these adolescents are more likely to engage in experimental substance use. Conversely, if their parents disapprove of drugs and do not engage in drug use, adolescents are more likely to adopt this attitude towards drugs as well. As a result, these adolescents are less likely to engage in experimental substance use (Bandura, 1986).

Integrative Review Framework

The guiding framework for the review of the literature process undertaken in this project will be the integrative review framework. For this review, the updated integrative

review methodology outlined by Whittemore and Knafl (2005) will be used. The integrative review method is a specific literature review method that differs from other review methods, such as the systematic review or meta-analysis methods. Compared to systematic review methodology, integrative review methodology allows for inclusion of diverse methodologies. For example, both quantitative and qualitative studies can be included in the review. This integration of various methodologies results in a more comprehensive overview of the phenomenon being reviewed. As a result, literature reviews that utilize the integrative review methodology possess the potential to inform research, practice, and policy initiatives.

The integrative review framework outlined by Whittemore and Knafl (2005) includes five stages in the literature review process: problem identification, literature search, data evaluation, data analysis, and presentation.

- Problem identification: this stage consists of developing a greater understanding of the general topic of interest, identifying a clear problem, determining the focus of the review, and clear boundaries to guide the review.
- Literature search: this stage consists of utilizing a well-defined literature search strategy that includes databases to be searched and key words to be used, to comprehensively review the literature for eligible primary studies that can be included in the review.
- Data evaluation: this stage consists of evaluating the quality of the primary studies found eligible to be included in the review. Evaluation consists of a consideration

of characteristics of the primary studies such as authenticity, methodological quality, and

informational value. Often in integrative reviews, evaluating quality of the primary sources included is only warranted when studies represent outliers.

- Data analysis: this stage consists of ordering, categorizing, and summarizing the data from the primary sources in an unbiased manner. Data extracted from primary studies are reduced, categorized, compared, conclusions are drawn by summarizing patterns and themes, and the conclusions are verified with primary source data.
- Presentation: this final stage consists of presenting the conclusions of the review in diagrammatic or table form to demonstrate themes and patterns. Next, implications for practice, research, and policy initiatives are discussed. Lastly, limitations should be explicitly stated (Whittemore & Knafl, 2005).

CHAPTER THREE – METHODS

Introduction

Many studies in the available literature have studied the influence of an adolescent's family environment on substance use. Additionally, prior reviews of the various factors influencing and contributing to adolescent substance use have been conducted. However, to the best of this author's knowledge, no review has been conducted that focuses solely on the adolescent's immediate family environment and its influence on subsequent adolescent substance use. Thus, this review seeks to summarize the available literature on this topic.

Search Terminology

Key words that were used to search electronic databases included: family, adolescent, risk, substance, use.

Databases Searched

Databases that were reviewed for eligible primary studies included PubMed, CINAHL, and PsycInfo.

Inclusion/Exclusion Criteria

The title and abstract of each research article were initially reviewed in order to determine if the study met the review inclusion criteria. If a determination could not be

made by reading the title and abstract, the article was read in full. In order for primary studies to be eligible for inclusion, they had to meet the following inclusion/exclusion criteria:

- Adolescents as sample population of focus.
- Adolescent sample characteristics must be free of other significant confounding influences that may skew the results such as mental retardation, significant learning disability, severe mental illness, and so forth.
- Adolescents included in primary study samples must live in a family environment of some sort (i.e. biological family, adopted family), not be homeless, or living in an orphanage.
- Must include assessment of some type of characteristic(s) of the immediate family environment that can potentially influence substance use behavior in adolescents.
- Must assess adolescent substance use as an outcome measure.
- Must not be a review article

Search Findings

In total, 3225 search results were reviewed for potential inclusion. Of these search results, 74 primary sources met criteria for inclusion. The total search results and included studies by database is as follows:

- PubMed: 248 search results. Of these results, 15 research studies met the criteria for inclusion.

- CINAHL: 821 search results. Of these results, 18 research studies met the criteria for inclusion.
- PsycINFO: 2156 search results. Of these results, 41 research studies met the criteria for inclusion.

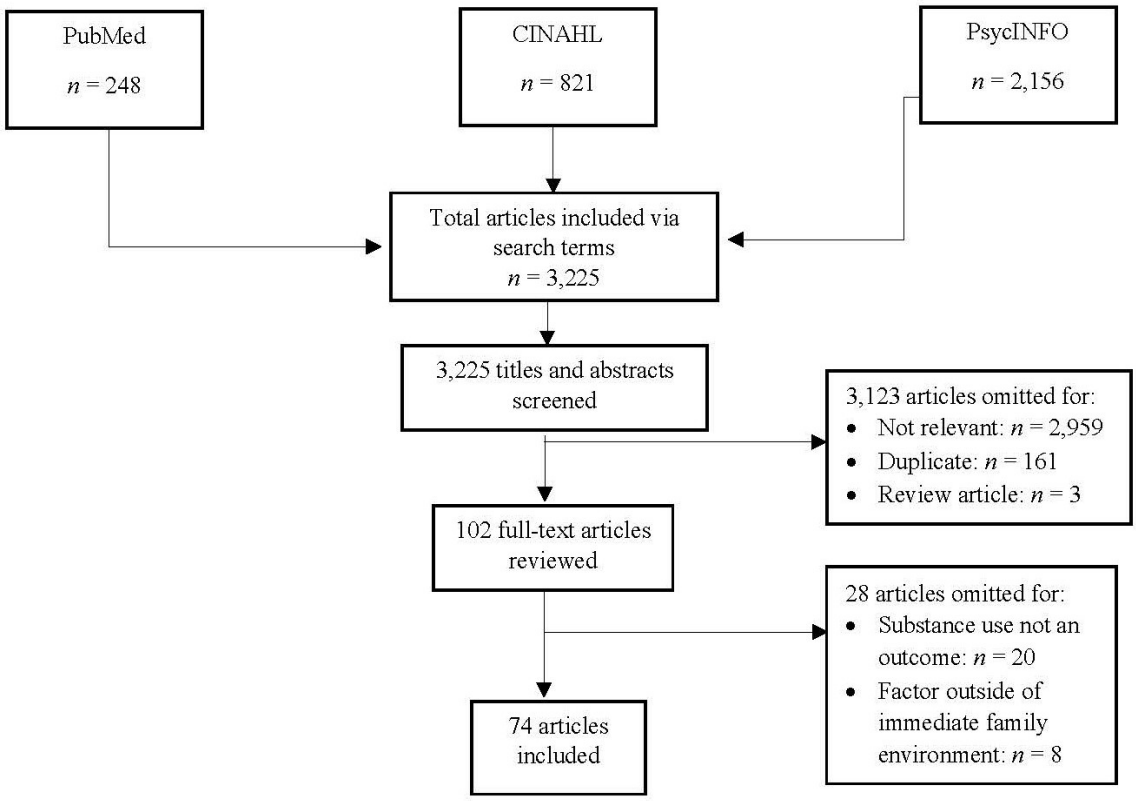

Figure 2. Search results flow chart.

Evaluating the Evidence

As specified in the Whittemore and Knafl (2005) guideline, there is no standard method for evaluating and interpreting the quality of primary sources; especially when the integrative review includes primary sources with various designs and methodologies. As a result, it is acceptable to only evaluate the quality of primary sources that represent

outliers in order to determine if methodological quality potentially explains the discrepant finding (Whittemore & Knafl, 2005). Thus, as outliers emerged during the data analysis stage, the methodological quality of those primary sources were then evaluated at that time and reported in the final review.

Data Analysis

According to Whittemore and Knafl (2005), the goals of the data analysis stage of an integrative review are to thoroughly interpret the primary sources in an unbiased manner, and to innovatively synthesize the evidence. Consistent with these guidelines, data analysis for this integrative review utilized a constant comparison method that consisted of data reduction, data display, conclusion drawing, and verification. Data reduction involved determining a classification system for managing the data. The determined classification system was to organize the data by the influential family environment factors examined by each primary source. Primary source data were then extracted into an evidence table that included the authors of the study, sample characteristics, study design, substances assessed as outcomes, and study findings. Next, study findings were organized into each respective category in order to serve as a starting point for interpretation. The data comparison stage then involved examining the data in each category to identify patterns, themes, and relationships. Then, conclusions were drawn by summarizing these patterns and themes. Lastly, these conclusions were then verified with primary source data in order to ensure accuracy (Whittemore & Knafl, 2005).

CHAPTER FOUR – RESULTS

Results

Consistent with the Whittemore and Knafl (2005) integrative review guidelines, a classification system was developed in order to manage the data, organize the data, facilitate the review process, and to clearly summarize the results of the review. The determined classification system was to organize the data by the influential family environment factors examined by each primary source. Thus, the remainder of this chapter is organized according to the common influential immediate family environment factors included by the primary sources. Further discussion about the characteristics of the primary sources is included in the final chapter of this paper.

Parent Modeling of Substance Use

The influence of parental substance use on adolescent offspring initiation of substance use has been studied extensively as a potential risk factor within the family environment. There is a substantial amount of evidence that adolescents who are children of substance using parents are at an increased risk for initiating substance using behaviors themselves. Many differences exist among the studies in this category in regards to which substances the parents are using and which substances the adolescents end up using themselves. However, the general consensus in the literature on this topic is that any substance use by the parent increases the odds that the adolescent will begin exhibiting substance use behaviors of some substance as well.

Many of the studies evaluated the association between parental modeling of alcohol, tobacco, marijuana use, and the adolescents' reported use of these same substances. According to these studies, adolescents of parents who smoke cigarettes, drink alcohol, or use marijuana, are more likely to report using themselves compared to adolescents who live with parents who abstain from use (Mouttapa et al., 2009; Gordon et al., 2004; Bahr et al., 2005; Hayatbaksh, 2008; Johnson et al., 2001; Lonczak et al., 2007). For example, one study found that adolescents who live with an alcoholic mother are 17.5 times more likely to report polysubstance use, and 2.4 times more likely if living with an alcoholic father (Alvarez-Alonso et al., 2016). Other studies have also found maternal substance use to have more of an influence than paternal use (Ali et al., 2016; Fang, 2011; Schinke et al., 2008). Furthermore, a significant association was found for ecstasy use in adolescents whose parents used ecstasy; such that exposure to parental ecstasy use significantly predicted adolescent initiation (Wu, 2010). Some other studies also included "other drugs," or "illicit drugs," as an outcome measure. These studies also found a significant association between parental use and adolescent report of "other" or "illicit" drug use (Beyers, 2004; Fergusson et al., 2008; Gordon et al., 2004; Hoffman, 1998; Myers, 2013). In a 25-year longitudinal study, parental drug use not only influenced adolescent initiation, but it was also found that the pathway to illicit drug use was strongly mediated by cannabis and alcohol use (Fergusson et al., 2008).

A couple of qualitative studies were also found related to this topic that help to provide some insight into how parental drug use influences an adolescent's decision to use substances. In both studies, the common themes reported were that the adolescents

observed their parents' drug use, admitted their parents' modeling of use influenced their perception of drugs, and their ultimate decision to use themselves (McLaughlin et al., 2016; Ronel et al., 2011). Despite their parent using drugs, many adolescents reported still viewing their parent as admirable, and reported a strong desire to identify with them, connect, and gain their approval through drug use. The adolescents who avoided use despite being exposed to parental use expressed aversion to substance use due to witnessing the damaging effects it had on the parent, the family, and a personal desire to achieve a brighter future than their substance using parent (Ronel et al., 2011).

Sibling Substance Use

Sibling drug use has been investigated in the literature as another potential risk factor for adolescent initiation of drug use. The substances included in these studies as outcome measures were alcohol, tobacco, and marijuana. The consistent finding on this topic is that sibling drug use does have a significant influence on adolescent drug use. This influence appears to be present across all of the substances evaluated. For example, a significant association was found between older sibling substance use and younger sibling reported use of alcohol, hard alcohol, tobacco, and marijuana (Bahr et al., 2005; Kothari et al., 2014; Pomery et al., 2005; Wagner et al., 2008; Samek et al., 2015; Vakalahi, 2002).

According to longitudinal study findings, the presence of older sibling substance use was significantly associated over time with younger sibling initiation of first time use, or an increase in use (Pomery et al., 2005; Kathari et al., 2014). Additionally, a

significant interaction was found over time between older siblings' behavioral willingness to use drugs and subsequent reported behavioral willingness to use drugs in younger siblings (Pomery et al., 2005). As a result, it has been posited that sibling drug use appears to have an influence by transmission of normative attitudes towards drug use to the younger sibling; especially older siblings who the adolescent likely perceives to be a role model (Pomery et al., 2005; Kothari et al., 2014).

Parental Attitude Towards Substance Use

Parental attitude regarding substance use also poses a potential risk or protective factor. In the literature, parental attitude toward substance use is generally defined as the adolescent child's perception of their parents' attitudes toward substance use. The common study finding on this topic is that parents who possess a favorable or permissive attitude towards drug use are more likely to have adolescent children who initiate and continue substance use. For example, adolescents who perceive their parents to possess a permissive or positive attitude toward substance use, and a lenient attitude toward the adolescent's substance use, were significantly associated with an increased personal report of substance use themselves; including alcohol, cigarettes, marijuana, "uppers," and nonmedical use of prescription opioids (Nakawaki et al., 2015; Bahr et al., 2005).

Conversely, parents who possess disapproving attitudes toward substance use, had rules against it, and expected abstinence are less likely to have adolescent children who report substance use (Schinke et al., 2008; Moon et al., 2000; Nakawaki et al., 2015). Additionally, the evidence suggests that parents with permissive attitudes toward drug

use are associated with adolescent children who also report a permissive attitude toward substance use. In addition to adopting their parents' permissive attitude toward substance use, these adolescents are also more likely to report being associated with friends who share this lenient attitude towards substance use; which further exacerbates the risk of continued substance use (Nakawaki et al., 2015; Bahr et al., 2005).

Communication

There is an abundance of evidence pertaining to the topic of parent-child communication and its significance as a potential risk or protective factor for adolescent substance use. After reviewing the literature on this topic, there is some variation as to what defines parent-child communication. Some studies define parent-child communication as simply being positive, frequent, unrestricted, open, and expressive communication existing between the parents and the adolescent child. Other studies further specify parent-child communication to contain anti-substance use communication, education, parental expression of beliefs or opinions about substance use, and expectations for the adolescent regarding substance use. This differs from the perceived parental attitudes toward substance use category of this review because parent-child communication refers to the actual verbal exchange between the parent and adolescent; not just the adolescent's perception of what their parents' attitudes toward substance use might be.

The consistent finding related to this topic is that the existence of positive, expressive, and anti-substance use communication is a protective factor against

adolescent substance use. Adolescents who report positive, open, unrestrained, and frequent communication with their parents in general are less likely to initiate or engage in tobacco, alcohol, marijuana, and other substance use (Fang et al., 2011; Fleming et al., 2016). Conversely, a lack of parent-child communication is a risk factor. Adolescents who report dysfunctional communication or a lack of communication with their parents are associated with an increased self-report of substance using behaviors (Mouttapa et al., 2009).

Furthermore, what is more important than just communicating in general is the content of the communication. Parent-child communication is a protective factor associated with decreased adolescent substance use when the content of the communication contains anti-substance use norms, beliefs, dangers of drug use, and expectations of abstinence (Schinke et al., 2008; Shin, 2017; Myers, 2013; Cleveland, 2005; Kam et al., 2013; Ringlever et al., 2011). Furthermore, the protective association of this anti-substance use communication is further enhanced when the adolescent reports a stronger parent-child connection, engaging in an open conversation, and not being simply lectured by the parent (Kulbok, 2010; Ackard et al., 2006).

However, if the parent verbally communicates a permissive attitude toward substance use to their adolescent child, this represents a risk factor for increased substance using behavior by the adolescent (Reimuller et al., 2013). Furthermore, parental disclosure of their own past substance use may negate the effectiveness of anti-substance use communication, normalizes substance using behavior, and is associated with an increase in adolescent use (Kam et al., 2013; Levy et al., 2010). Only one outlier

study found that increasing frequency of parent-child anti-substance use communication wasn't protective, and was possibly associated with increased use. However, the authors mention that their findings should not be interpreted to mean that parents shouldn't engage in anti-substance use communication with their adolescent children. Instead, they concluded that their findings might be explained as less-frequent and higher quality communication being potentially more effective than simply frequent anti-substance use communication (Van Der Vost et al., 2010).

Parental Involvement

The level of parental involvement with the adolescent child has also been a topic of focus in the literature. Parental involvement is generally defined as the level by which parents are actively engaged in the adolescent's life and in their own parental role and responsibilities. This may include checking to see if homework is completed, checking school progress, making the adolescent participate in chores, limiting when and for how long the adolescent can be outside of the home, knowledge of the adolescent's whereabouts, limiting the amount of television, eating meals together, parent telling the adolescent they are proud of them, and other similar actions by the parent. There is consensus amongst the literature on this topic that increased parental involvement is significantly associated with less adolescent tobacco, alcohol, marijuana, and illicit substance use. Contrarily, decreased parental involvement was associated with increased adolescent reported substance use (Jones et al., 2015; Vakalahi, 2002; Fang, 2011; Fleming, 2016; Ali et al., 2016). Additionally, according to a longitudinal study by

Samek et al. (2015), increased parental involvement in early adolescence was significantly associated with a reduced likelihood of subsequent adolescent reported substance use. Therefore, the collective findings of these studies highlight the importance of consistent and a high level of parental involvement.

Parental Monitoring

Parental monitoring is another potential risk or protective factor that is similar to the previous category of parental involvement. Parental involvement included monitoring the adolescent's whereabouts and remaining knowledgeable about what they were doing, in addition to engaging in activities and spending time with the adolescent. However, parental monitoring refers specifically to being knowledgeable and aware of the adolescent's whereabouts, who they are with, and what they are doing. There is a substantial amount of evidence on this topic that highlights the importance of parental monitoring.

Close parental monitoring behaviors were found to be significantly associated with decreased adolescent use of tobacco, alcohol, marijuana, opioids, LSD, ecstasy, amphetamines, and non medical use of prescription drugs. Furthermore, a lack of parental monitoring was found to be significantly associated with increased reported use of these substances (Pizarro et al., 2017; Balázs et al., 2017; Segrott et al., 2010; Fang, 2011; Farmer, 2008; Bahr et al., 2005; Schinke et al., 2008; McArdle, 2002; Hayatbakhsh, 2008). According to longitudinal study data, higher levels of parental monitoring and awareness were significantly associated with decreased likelihood of adolescent

substance use initiation over time. Lower levels, or a lack of, parental monitoring were significantly associated with increased initiation and continued use over time (Bronte-Tinkew, 2006; Van Ryzin, 2012; Wu, 2010; Cruz et al., 2018; Cleveland, 2005).

In a qualitative study by McLaughlin et al. (2016), adolescents reported increased parental monitoring discourages them from engaging in substance use. Furthermore, in a study that explored the topic of parental divorce, increased parent child-monitoring was found to significantly mediate the negative impact divorce has on increasing adolescent substance use (Breivik et al., 2009).

Family Conflict

Family conflict has also been identified in the literature as an influential family environment risk factor for adolescent substance use. Family conflict is generally defined as the existence of fighting, arguments, and acting out behaviors within the household. Exposure to conflict can directly involve the adolescent, such as between the parent and the adolescent, or the adolescent child can be exposed to witnessing others in the household engaged in conflict. The emerging theme in the literature pertaining to this topic is that increased levels of conflict within the family environment are associated with an increased risk for adolescent substance use. Exposure to high levels of family conflict is significantly associated with increased adolescent reported use of alcohol, nonmedical prescription stimulant use, marijuana, and tobacco use (Segrott et al., 2010; Cordova et al., 2014; Herman-Stahl et al., 2006; Breivik et al., 2009; Skeer et al., 2009; Best et al.,

2014; Skeer et al., 2011; Brook et al., 2009; Chan et al., 2013; Cruz et al., 2018; Lombardo et al., 2001).

Adolescents who are exposed to high levels of family conflict are not only at increased risk for substance use development, they are also at risk for an earlier onset. Adolescents who were exposed over time to high levels of parent-child conflict reported substance using behaviors at younger ages than those who were not exposed (Cruz et al., 2018). Additionally, the higher the levels of family conflict, the more severe the substance use problem (Best et al., 2014). Furthermore, the pathway from exposure to conflict to substance use appears to be mediated by the adolescent experiencing psychological distress, developing vulnerable personality attributes and low life satisfaction, exhibiting externalizing problems such as hyperactivity, violence, and delinquency, which all increase the risk the adolescent will engage in substance use (Skeer et al., 2009; Best et al., 2014; Brook et al., 2009). Lastly, one study that examined gender differences found that the negative influence of family conflict was more significant on females versus males, suggesting that females may be more vulnerable to the negative effects of family conflict than males (Skeer et al., 2011).

Family Connectedness and Positive Relations

There is a vast amount of evidence pertaining to the influence of the parent-child bond on adolescent risk for substance use development. Among the studies found in the literature on this topic, a variety of terms are used to describe the same phenomenon; such as parent-child bond, parent-child closeness, and parent-child positive relationship.

However, all of these studies have been grouped into the same category due to referring to the same general occurrence; with few differences. The predominant finding on this topic is that the higher the level of parent-child closeness, or the stronger the bond, the lower the level of risk for the adolescent to engage in substance use. A strong parent-child bond has been found to be significantly associated with decreased adolescent reported substance use (Valdez, 2006; Bahr et al., 2005; McArdle, 2002; Kuntsche, 2006; Jones et al., 2015; Ackard et al., 2006; Tilson et al., 2004; Balázs, 2017). Furthermore, strong parent-child bonds were found over time to be associated with decreased first-time use, later age of onset if use was reported, and decreased severity of use (Van Ryzin, 2012; Kopak et al., 2012; Bronte-Tinkew, 2006).

A few studies examined the influence of the father-child bond, or mother-child bond, separately. Of these studies, the results trend toward a closer father-child and mother-child bond as decreasing adolescent risk for substance use. However, these studies had mixed results in terms of whether the father-child bond or mother-child bond was more significant (Bahr et al., 2005; McArdle 2002). Additionally, one study only examined the mother-daughter relationship and found a closer and more positive relationship decreased their adolescent daughters' substance use risk (Valdez, 2006). The strength of the parent-child bond was associated with the existence of other risk or protective factors as well. For example, weak parent-child bonds were associated with parents who also exhibit a lack of awareness of their adolescent child's whereabouts (Jones et al., 2015; Van Ryzin, 2012). Furthermore, in Van Ryzin's (2012) longitudinal study, the course of adolescence and low quality of parent-child relationships

significantly predicted a lack of parental monitoring, increased adolescent substance use, and increased adolescent association with deviant peers. Moreover, adolescents reported placing a higher value on their parents' opinions about substance use if they also reported a strong parent-child bond (Ackard et al., 2006; McLaughlin et al., 2016).

Some other studies examined the closeness of the family as a whole and the influence this had on adolescent risk for substance use. These studies used descriptive terms such as family closeness, family cohesion, positive family relations, and family connectedness to describe the same general occurrence. The overarching finding is that adolescent perceived positive family relations and closeness is significantly associated with decreased adolescent self-reported substance use (Segrott et al., 2010; Weiss, 2011; Carter et al., 2007; Pizarro et al., 2017; Lombardo et al., 2001). Furthermore, adolescent self-reported lack of positive family relations was found to be associated with an earlier age of adolescent self-reported initiation of substance use (Moon, 2000).

Abuse

Exposure to abuse has also been identified as a risk factor for adolescent substance use. The most consistent finding on this topic is that exposure to any type of abuse is associated with an increased risk for substance use; some being more significantly associated than others. However, research found in this review pertaining to this topic included a lot of variation in methodology that made it difficult to keep within the identified scope of this review. For example, the scope of this review is inclusive of influences within the immediate family environment. However, the majority of studies

found on this topic did not differentiate if the abuse occurred within the immediate family environment or from outside sources.

Amongst the research in which the source of the abuse originated from the adolescent's immediate family environment, all included types of abuse were found to be significantly associated with increased adolescent reported substance use; including physical, sexual, and emotional abuse, as well as neglect, and witnessing violence against an adolescent's mother (Dube, 2003; Caballero et al., 2010; Wall et al., 2007; Fergusson et al., 2008). However, the significance of each type of abuse on adolescent substance use varied by study. For example, two studies found sexual abuse to be the most significant; increasing risk two to five times compared to children who weren't sexually abused (Dube, 2003; Caballero, et al., 2010). Conversely, one study found physical abuse to be more significant than sexual abuse (Wall et al., 2004).

According to the research studies that did not differentiate if the source of the abuse originated from within the immediate family or outside of it, all types of abuse were consistently found to increase adolescent substance use risk as well. Among these studies, emotional, physical, sexual abuse, as well as neglect, were all significantly associated with an increase in adolescent substance use; including tobacco, alcohol, marijuana, illicit drugs, as well as poly-drug use (Balázs et al., 2017; Snyder et al., 2015; Oshri et al., 2011; Moran et al., 2004; Alvarez-Alonso et al., 2016). In terms of significance, adolescents who are victims of sexual abuse appear to be at the most risk compared to those who are victims of other forms of abuse (Alvarez-Alonso et al., 2016; Moran et al., 2004).

Overall, there is agreement among the studies that the risk for substance use initiation significantly increases in adolescents who are victims of more than one type of abuse; suggesting that risk increases as types of abuse increase (Moran et al., 2004; Caballero et al., 2010; Dube et al., 2003). Additionally, experiencing more episodes of abuse is associated with an earlier age of substance use initiation in adolescence (Dube et al., 2003). Oshri et al. (2011) documented in a longitudinal study that children exposed to abuse exhibited a pathway of decreased resiliency, and increased internalizing and externalizing symptoms, prior to subsequent initiation of substance use. Furthermore, a qualitative study helps to provide some insight into this pathway to substance use as well. Adolescents who felt neglected by their parents reported this caused a void within themselves, which then made them seek immediate satisfaction through damaging behaviors such as substance use (Ronel & Levy-Cahana, 2011).

Socioeconomic Status

Some studies included in this review examined the relationship between socioeconomic status and adolescent risk for substance use. However, this review did not find a lot of evidence related to this topic. Furthermore, there were mixed findings in the literature on this topic. For example, one study found adolescents from socioeconomically disadvantaged households to be significantly associated with an increase in adolescent reported substance use (Nakawaki et al., 2015). Similarly, another study found this relationship to be significant, but only of African Americans, and not when all races were combined (Fagan et al., 2013). In complete contrast, a separate study

found that substance use was more prevalent in adolescents from higher socioeconomic status families than those of lower socioeconomic status. This finding was theoretically explained by the authors as those of higher socioeconomic status having more financial resources to spend on drugs (Hanson, 2007).

However, the study that found socioeconomic status to be a significant risk factor came from a large and nationally representative sample (n = 7476; Nakawaki et al., 2015). In contrast, the study linking higher socioeconomic status to increased risk had a small sample size and participants only from one city (n = 113; Hanson et al., 2007). Naturally, the study inclusive of a large and nationally representative sample should be assigned more weight, and this needs to be taken into consideration while evaluating the findings on this topic. Lastly, a different study examining the pathway from low socioeconomic status to adolescent substance use found the daily activities adolescents were involved in to be of particular importance in terms of determining their risk for substance use (Lee et al., 2018).

Family Composition

There is a large amount of literature that focuses on the topic of how the composition of the adolescent family environment influences adolescent risk for substance use. The vast majority of the literature found in this category focuses on whether or not living in a single parent household versus a two-parent household influences an adolescent's risk for substance use. The predominant finding is that living in a single parent household significantly increases an adolescent's risk for substance use

for a variety of substances (Nakawaki et al., 2016; Mouttapa et al., 2009; Lonczak, 2007; Wu, 2010; McArdle et al., 2002; Kuntsche, 2006; Broman, 2008; Wagner et al., 2010; Myers, 2013; Ali et al., 2016). A few studies failed to find this significant association, but they included small sample sizes that also lacked subject characteristic diversity (Wagner et al., 2008; Gordon et al., 2004; Fang, 2011).

A couple of longitudinal studies examined some potential mediating factors that may explain the link between adolescents living in single parent households and having increased substance use risk. One study found low levels of religiosity in the single parent family, a lack of adolescent perceived parental love and warmth, and association with drug using peers to be significant mediating risk factors (Broman et al., 2008). Another study found an adolescent perceived lack of parent-child communication, lack of parental monitoring, and a lack of cohesion to be significant mediating risk factors (Wagner et al., 2010).

There are some other interesting findings within this particular topic category as well. One large study (n = 8,613) found that adolescents who reported living with a household member who was incarcerated were 3.3 times more likely to report engagement in substance use than adolescents who did not (Dube et al., 2003). Another study found that gender composition plays a role. It was found that female sibling composition, and to a lesser extent, mixed gendered siblings, were associated with less substance use. Conversely, having male sibling composition was found to increase substance use (Samek et al., 2015).

Parental Separation/Divorce

Parental separation or divorce has also been identified as a risk factor for adolescent substance use (Arkes, 2013; Dube et al., 2003). However, only two studies report findings on this topic. According to results from the well known adverse childhood experiences study, adolescents who experienced parental divorce or separation were 2.5 times more likely to engage in illicit drug use by age 14 than those who did not experience it (Dube et al., 2003). Furthermore, it was also found that adolescents are at an increased risk for substance use leading up to parental divorce, at even more significant risk within two years of the divorce, and for risk to still be significantly increased even 6 years after the divorce (Arkes, 2013).

Religious Practice and Involvement

Adolescents who are influenced by a family environment that identifies with a religion and is engaged in religious practices has also been identified as influencing adolescent substance use outcomes. The research on this topic examines factors such as family religious affiliation, religious involvement, and adolescent perceived importance of religion. The common documented finding is that adolescents who live in households that do not engage in religious practice are at more risk for substance use compared to those that do engage in religious practice (Mason, 2011; Vakalahi, 2002; Farmer et al., 2008; Bahr et al., 1998; Mahoney et al., 2014; Broman, 2008; Myers, 2013). Furthermore, the adolescent's personal identification with and perceived importance of religion is particularly important (Mason, 2011). Additionally, family religious

involvement was found to diminish adolescent substance use risk associated with living in a single parent household as well as being subjected to parents who demonstrate harsh parenting styles (Broman, 2008; Mahoney et al., 2014). A qualitative study on this topic provides some additional insight as well. Adolescents who abstained from substance use cited their religious beliefs as the main reason for abstaining. In addition to shaping their attitude towards substance use, they reported their religiosity was an important coping mechanism and assisted them to maintain personal well-being (Sanchez et al., 2008).

Parental Emotional Support

There are a few studies included in this review that examined the influence parental emotional support had on adolescent substance use risk. These studies all used different terminology; such as parental warmth, positive parenting, and parental support. However, they all were similarly describing the existence of a parent that is emotionally supportive and caring toward their adolescent child; such as giving praise for positive behavior, actively listening, and demonstrating a caring attitude and behavior. The consistent finding from these studies was that adolescents who perceived their parents to be emotionally supportive and caring parents were significantly less likely to report engaging in substance use (Fleming et al., 2016; Cleveland et al., 2005; Cordova et al., 2014). Furthermore, Cleveland et al. (2005) reported that from their longitudinal study, parents who exhibited these emotionally supportive behaviors had adolescent children who were less likely to initiate engagement in substance use.

Parental Psychopathology

There is also some evidence to suggest that parental psychopathology, or parental mental illness, has an influence on adolescent risk for substance use. However, little research was found on this topic. Based on findings from the well-known adverse childhood experiences study, adolescents who grew up with a mentally ill household member were 2.3 times more likely to initiate substance use than those who did not (Dube et al., 2003). Another study found that adolescents who had mothers with comorbid mental illness and substance use disorder, were 5 times more likely to develop a substance use disorder themselves. However, this was not found to be true for fathers. Finally, there was no significant association found for parents who only have a mental illness disorder without a comorbid substance use disorder (Ali et al., 2016).

Parenting Style

Some findings related to parenting practices were also found to influence adolescent engagement in substance use. One study found that adolescents who reported inconsistent discipline by their parents, such as threatening to punish them and not actually following through, was associated with increased adolescent reported substance use (Fleming, 2016). Another study found adolescents who perceived their parents to have poor family management skills were associated with increased self-reported substance use (Beyers et al., 2004). Lastly, a longitudinal study found adolescents who report having a father with an authoritarian parenting style are more likely to report first

time substance use over time than adolescents who do not have a father with that parenting style (Bronte-Tinkew, 2006).

Other Findings

A couple of studies reported findings on topics that could not be included in the other categories of this review. One study found that adolescents whose families move often were associated with increased adolescent reported illicit drug and alcohol use (Ali et al., 2016). Additionally, another study found that families who lack effective coping behaviors, such as problem solving skills and behavioral strategies for managing difficult situations, had female adolescent children who were more likely to report marijuana, cocaine, and benzodiazepine use (Valdez, 2006).

CHAPTER FIVE – DISCUSSION

Discussion

The goal of this project was to review and summarize the available literature pertaining to the topic of risk factors for substance use that are present within the adolescent's immediate family environment. Utilizing the integrative review guideline developed by Whittemore and Knafl (2005), a systematic review process was undertaken in an attempt to summarize the available literature as clearly and accurately as possible. Throughout the entire process of conducting this integrative review, this author made every good faith effort to include all relevant articles within the identified scope, to accurately extract primary source data from the included articles, to accurately synthesize the literature without sacrificing quality and accuracy, and to report the results of the review without injecting any potential bias. Thus, this author feels the findings reported in this review are strong in terms of quality and have many potential implications for practice, prevention, and future research.

This review process resulted in a large amount of literature that identifies risk and protective factors within the immediate family environment that are considered to influence adolescent substance use outcomes. The study designs of the primary studies included cross-sectional, longitudinal, and qualitative designs. Data collection methods included interviews, self-report measures, utilizing national survey data, and included a wide variety of instrumentation. The sample sizes of the primary studies included below ranged from 18 to 18,600 adolescents, several studies included nationally representative

samples, whereas others utilized more local samples. The demographic characteristics of the samples were diverse. For example, racial characteristics included races such as Caucasian, African American, Asian, Hispanic, American Indian, and adolescents from various other foreign nationalities. Additionally, samples were inclusive of a variety of urban, suburban, rural, economically disadvantaged, and more affluent communities. Geographically, adolescent samples were obtained from several different counties, such as the United States, Australia, Norway, New Zealand, Netherlands, Ireland, Mexico, Switzerland, England, Spain, Hungary, Peru, and Brazil. In regards to specific substances, alcohol, tobacco, cannabis, cocaine, methamphetamine, prescription stimulants, prescription opioids, heroin, LSD, PCP, ecstasy, benzodiazepines, are all examples of substances included as outcomes amongst the primary studies. However, alcohol, tobacco, and cannabis were definitely the most common.

As a result of this integrative review, many significant influential factors within the immediate family environment have been identified. These influences include risk factors such as parental modeling of substance using behavior, parents who possess positive or permissive attitudes towards substance use, sibling modeling of substance use, dysfunctional communication patterns within the family, parents who are not emotionally supportive and involved, parents who do not monitor their adolescent's behaviors and whereabouts, a presence of conflict and violence within the household, a negative parent-child relationship and lack of a bond, being abused by a family member, parents who neglect their adolescent child, living in a single parent household, the adolescent

experiencing parents going through a separation or divorce, and living with a mentally ill household member.

Conversely, some positive immediate family environment factors found to be associated with decreased adolescent substance use and initiation were living in a two parent household, the presence of a strong parent-child bond or attachment, positive and open communication patterns, emotionally supportive and involved parents, parents who communicate clear anti-substance use beliefs and dangers of substance use, parents who monitor their adolescent's whereabouts and behaviors, religious practice and involvement, and a cohesive and connected family. The only factor that resulted in mixed findings was the influence of socioeconomic status. However, a previous review that examined the influence of socioeconomic status on adolescent substance use also found mixed findings related to this topic (Stone at al., 2012). Furthermore, it should be noted that the immediate family environment is not the only source of potential influence that affects adolescent substance use risk. For example, adolescent genetic predisposition, adolescent psychopathology, and deviant peer relationships are examples of some other commonly studied influential factors (Stone et al., 2012). However, it was always the intention and scope of this review to only include influential factors within the adolescent's immediate family environment.

Limitations of the Project

There are a couple of notable limitations of this project. First, it is important to note that this integrative review was conducted solely by a graduate student who lacks

significant experience or expertise in conducting research. Furthermore, it should be noted that the author does possess some clinical experience working with adolescents and some background knowledge on the topic of adolescent substance use. However, the reader should take into consideration that the author is not an expert on this topic.

The second potential limitation of this project is that each primary research study included in this review was not individually evaluated for quality. This course of action was taken due to the fact that there is no established gold standard method for assessing the quality of primary studies in an integrative review that is inclusive of studies with diverse designs and methodologies. As a result, this author chose to only evaluate the quality of primary sources that represented outliers in order to determine if methodological quality potentially explained the discrepant finding. Thus, as outliers emerged during the data analysis stage, the methodological quality of those primary sources were then evaluated at that time and reported in the final review. According to the Whittemore and Knafl (2005) guideline, this approach is appropriate according to the data evaluation stage recommendations for integrative reviews that are inclusive of diverse designs and methodologies. However, the reader should be aware and take this into consideration.

Lastly, the key terms used to conduct the literature search of the three databases could have been a potential limiting factor. Although this author feels the review of the available literature on this topic was fairly exhaustive, it can be argued that more research could have been obtained through different search methods. For example, utilizing

various combinations of different key terms could have resulted in more primary research studies that could have been included in this review.

Implications for Practice and Prevention

While it is definitely true that more research can be conducted in order to strengthen the available evidence on this topic, that can be said about any research topic. Furthermore, it often takes a considerable amount of time for research findings such as those included in this review to be utilized in practice. As a result, it is this author's opinion that the results of this integrative review are compelling enough to warrant some implications for the daily practice of mental health providers and for adolescent substance use prevention. At a minimum, the results of this review should serve to inform the daily practice of mental health providers who work with adolescents and those involved in planning adolescent substance use prevention efforts.

In general, the practice of all mental health providers who work with adolescents consists of some process of conducting an initial assessment, drawing conclusions based on that assessment, and formulating an appropriate course of action, or treatment plan. Providers who are unaware of the significant influence the immediate family environment has on adolescent substance use risk are unable to formulate the most appropriate and beneficial treatment plan. Quite simply, providers cannot take into consideration factors that they are not even aware of. As a result, it is important that all mental health providers be aware of the risk and protective factors within the immediate

family environment for adolescent substance use summarized in this review to inform their decision making in general.

One specific potential application of this knowledge in daily clinical practice would be to utilize the risk factors identified in this review, in combination with other knowledge, as a measure of calculating each adolescent's substance use risk based off of their family environment. For example, if the adolescent's family environment contains many of the risk factors identified in this review, the provider should be strongly considering the need for family based interventions; such as family therapy. This is due to the fact that the negative family environment will continue to put the adolescent at increased risk for substance use and other problems over time unless changed. Determining this need for family therapy is especially important in practice settings where adolescents may be presenting for the first time, as early intervention may prevent substance use initiation. Another potential application is for family therapists to take these risk factors into consideration while assessing, conceptualizing, and formulating targeted interventions for the family presenting for therapy. The family therapist who possesses knowledge of these evidenced based risk and protective factors within the immediate family environment will be able to establish clear priorities and formulate more effective interventions. Additionally, the status of these risk and protective factors can be assessed over the course of family therapy treatment to track therapeutic progress.

In terms of adolescent substance use prevention outreach programs, the risk and protective factors identified in this review should be taken into consideration by those responsible for designing these programs in order to ensure the prevention effort is

evidenced based and as effective as possible. The vast majority of adolescent substance use prevention occurs in the school setting; such as in a school health class. However, due to the significant influence the family environment has on adolescent substance use, this suggests that substance use prevention efforts need to concentrate more on family outreach and education, in addition to current school based prevention efforts.

Implications for Future Research

Although this review has summarized the evidence about the risk and protective factors that exist within the immediate family environment, there is still much that needs to be accomplished in future research. During the process of this integrative review, this author noticed that there was almost no continuity in terms of the instrumentation utilized amongst studies that assessed a similar immediate family environment risk factor. As a result, this author would encourage the future development and adoption of standardized instruments to assess factors such as family religiosity, family conflict, family communication, and other risk factor categories included in this review. Additionally, the vast majority of studies included in this review included only alcohol, cannabis, and tobacco as substance use outcomes. Future studies need to be inclusive of other substances as well such as heroin, methamphetamine, cocaine, ecstasy, which are being used by the adolescent population as well (Johnston et al., 2017).

Furthermore, the practical clinical application of these evidenced based risk and protective factors needs to be a topic of future research. Currently, the evidence in this review can be used to guide and inform practice. However, specific tools and instruments

still need to be developed using the evidence in this review as a guide for their development. Specifically, an instrument needs to be developed that can rapidly assess the level of risk present in the immediate family environment of the adolescent and also suggests the level of need for family therapy based off of the total risk score. Such an instrument could be made part of the standard intake assessment process for primary care, as well as in various mental health settings.

This review also suggests a need for further family-based adolescent substance use prevention research. Specifically, the risk and protective factors included in this review may be utilized to modify existing family outreach efforts. It may also be beneficial for families to know the risk and protective factors associated with adolescent substance use initiation in order to make their own informed decisions to minimize risk. Additionally, future research is needed to determine the effectiveness of adolescent individual substance use prevention and education versus family-based substance use prevention.

Congruency with Theoretical Frameworks

The theoretical frameworks used as guiding theoretical frameworks for this project were family interaction theory, resiliency theory, and social cognitive/learning theory (Brook et al., 1990, Fergus & Zimmerman, 2005, Bandura, 1986). As stated previously, family interaction theory served as the main guiding theoretical framework for this project. This theory highlights the importance of the parent-child bond as protecting the adolescent child from experimenting with substance use. Specifically, the

stronger the parent-child bond, the stronger the level of protection, and the lower the level of risk (Brook et al., 1990). According to the studies that researched the association between parent-child bonding and adolescent substance use, it would appear this theory is strongly supported by the evidence. This is due to the fact that a strong parent-child was found to be significantly associated with decreased adolescent reported substance use. Furthermore, strong parent-child bonds were found over time to be associated with decreased first-time use, later age of onset if use was reported, and decreased severity of use.

Another guiding theoretical framework for this project was resiliency theory. This theory proposes that exposure to more risk than protective factors in the immediate family environment may reduce the adolescent's level of resiliency, reduce the ability to overcome the negative effects of risk exposure, causing him or her to be more vulnerable and likely to pursue a negative trajectory in life, and possibly engage in substance use (Fergus & Zimmerman, 2005). Based on the findings in this review, it is apparent that the presence of more risk factors in the immediate family environment does increase the likelihood of pursuing a trajectory towards substance use initiation and continued use. However, there is a lack of evidence in this review to explain the role that the adolescent's individual resiliency plays in increasing or decreasing substance use risk in the presence of these family environment risk factors. This is likely due to the scope of this review focusing on family environment factors and not adolescent individual factors. Thus, although this theory is likely true, it can only be partially supported based on the findings of this review.

The last theory used to guide this project was social cognitive/learning theory (SC/LT). This core principle of this theory is that adolescents do not spontaneously acquire any perception or attitude towards substance use by themselves. Instead, they form a perception of and attitude towards substance use through close observation of those they perceive to be role models in their lives; such as their parents (Bandura, 1986). According to the results of this review, it is safe to conclude that the evidence on this topic supports this theory. The overarching finding amongst the studies that assessed the favorable attitudes towards substance use, as well as substance use modeling by parents and siblings, is that this does create a positive perception or normative attitude towards substance use amongst adolescents. In contrast, the adolescents who did not have parents and siblings who modeled substance use, and who were influenced by parents and siblings who had a negative perception of substance use, were less likely to engage in substance use, possess a positive perception of substance use, or a normative attitude towards substance use.

Conclusion

The purpose of this project was to review and summarize the available literature related to risk and protective factors within the immediate family environment that are associated with adolescent substance use. Following the Whittemore and Knafl (2005) integrative review guideline, the integrative review process was undertaken, and an integrative summary was presented categorically based on the commonly identified influential factors within the literature. As a result of this review, many common

influential risk and protective factors for adolescent substance use were summarized. Due to there being significant associations between the majority of the influential factors and adolescent substance use outcomes, the results of this review have many potential implications for providers who work with the adolescent population, those involved in adolescent substance use prevention efforts, and future research.

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APPENDICES

APPENDIX A

EVIDENCE TABLE

	Author(s)	Sample	Design	Substances Included as Outcomes	Findings
1	McLaughlin et al. (2016).	N = 62 Age 13-17 years Ireland	Qualitative	N/A	Parental substance use impacted children's decision to use Increased parent-child attachment was protective against substance use Authoritative parenting style, parental monitoring, and increased communication a protective factor
2	Pizarro et al. (2017).	N = 180 Age 14-19 years Peru	Cross-sectional	Alcohol	Low levels of parental monitoring and low levels of positive family relationships significantly associated with problem drinking, even when adjusted for influence of deviant peers and socioeconomic status

					Family conflict was associated with increased odds of drinking, but did not reach significance
3	Balázs et al. (2017).	N = 1,981 Age 13-18 years Hungary	Secondary analysis of existing data Cross-sectional	Alcohol	Physical and sexual abuse positively related to adolescent alcohol abuse Parental control, awareness, and adolescent positive identification with parents was protective
4	Segrott et al. (2010).	N = 6,628 Age 11-16 years Wales, United Kingdom	Secondary analysis of existing data Cross-sectional	Alcohol	Parental monitoring and family closeness negatively associated with alcohol Family conflict and violence positively associated with increased alcohol use, as well as adolescents who report parents with liberal attitude towards alcohol/crime, and having a sibling or family member with substance misuse problems

5	Snyder, et al. (2015).	N = 822 Age 11-17 years United States	Secondary analysis of existing data Cross-sectional	Alcohol Marijuana Cocaine Heroin Methamphetamine Ecstasy	Physical abuse associated with six-fold increase in polysubstance use but not alcohol or marijuana use.
6	Nakawaki et al. (2015).	N = 7,476 Age 12-17 years United States	Secondary analysis of existing data Cross-sectional	Alcohol, Marijuana Inhalants Cocaine Heroin Hallucinogens Opioids Stimulants Sedatives Tranquilizers	Majority of adolescents who reported alcohol, marijuana, opioid use perceive their parents as more permissive of drugs, parents less involved in their lives, are from single parent households, low socioeconomic status, and tend to hold more lenient attitudes toward substance use themselves
7	Cordova et al. (2014).	N = 850 Age 14-18 years Midwestern United States	Secondary analysis of existing data Longitudinal	Alcohol Marijuana	Adolescents who are part of families with lower family functioning (high reported levels of fighting and acting out) and support measures are associated with increased risk for alcohol and marijuana use

8	Arkes. (2013).	N = 1,975 Age 12-17 years United States	Secondary analysis of existing data Longitudinal	Alcohol Cigarette Marijuana	Adolescents at significantly higher risk only for alcohol leading up to the divorce, cigarette and marijuana use positively associated but doesn't reach significance Within two years after divorce, adolescents at significantly higher risk for marijuana and alcohol use becomes significant for "heavy use category" Marijuana and alcohol use remains significantly increased 2 to 6 years after the divorce
9	Ronel et al. (2011).	N = 19 Age 14-22 years Israel	Qualitative	Marijuana Opioids	Many saw their drug abusing parent as powerful, admirable, and desired to identify with the parent through drug use to gain approval Feeling neglected by

					substance abusing parent caused them to search for significant relationships in the street sub-culture, to feel weak, unfulfilled, and an inner force drawing them to immediate satisfaction such as damaging behaviors and drug use Ones who avoided substance use identified as being strong compared to "weak" substance using parent, expressed aversion to substance use due to witnessing damaging effects it had on parent, responsibility to protect siblings, hope to find a better future
10	Mouttapa et al. (2009).	N = 1,598 Age 12-18 years California	Cross-sectional	Alcohol Cigarettes	Adolescents who lived with both parents had significantly less alcohol & cigarette use than those in non-traditional households

					Adolescents whose parents use was significantly associated with adolescent use Low family functioning associated with higher rates of smoking and alcohol use
11	Van der Meer Sanchez et al. (2008).	N = 62 Age 16-24 years Brazil	Qualitative	Marijuana Cocaine	74% of non-users reported a family that practiced a chosen religion (mainly catholic), and 34% of users Participants in practicing families view religion as a means to resolve personal problems Adolescent users who started practicing religion identified religion as helping them quit or make drastic reductions in use
12	Wagner et al. (2008).	N = 255 Age 14-16 years	Cross-sectional	Alcohol Cigarettes Marijuana	Adolescents in single parent households not more likely than two parent households

		California			to use Living with older siblings increased alcohol and cigarette use Those living with cousins more 2.7 times more likely to have used marijuana
13	Herman-Stahl et al. (2006).	N = 17,709 Age 12-17 years United States	Secondary analysis of existing data Cross-sectional	Prescription stimulants Methamphetamine	Adolescent report of high family conflict significantly associated with greater odds of stimulant use
14	Gordon et al. (2004).	N = 193 Age 14-18 years Maryland	Cross-sectional	Alcohol Marijuana "Other Drugs"	Deviance (engagement in drug use and illegal activity) within the family environment associated with earlier substance use onset. Living in a two parent household and increased family satisfaction not associated with delayed onset (although maybe due to limited variation in

					sample)
15	Johnson et al. (2001).	N = 675 Age 13-18 years Missouri	Longitudinal	Alcohol Marijuana	A perceived negative family environment and family substance use dependence associated with adolescent substance misuse
16	Bronte-Tinkew et al. (2006).	N = 5,345 Age 12-18 years United States	Secondary analysis of existing data Longitudinal	Alcohol Cigarettes Marijuana	Risk of first substance use lower for adolescents who have positive father-child relationship, father with high level of monitoring and awareness levels Risk for substance use higher when father has authoritarian parenting style,

					but reduced when father-child relationship is still positive (emotionally connected)
17	Fang et al. (2011).	N = 135 Age 11-14 years United States	Cross-sectional	Alcohol, Cigarettes Marijuana Non-medical use of prescription drugs	Daughters significantly less likely to have drank alcohol if mothers exerted more monitoring, more communication, and greater involvement with them Maternal drinking and smoking positively associated with daughter drinking and other drug use Single parent households in this sample did not result in more drug use by adolescent

18	Mason et al. (2011).	N = 667 Age 11-18 years Iowa	Longitudinal	Alcohol Cigarettes Marijuana	Decline in religious salience and attendance associated with increased substance use Adolescent perceived importance of religion and frequency of attendance associated with decreased substance use
19	Breivik et al. (2009).	N = 5,171 Ages 11-15 years Norway	Cross-sectional	Alcohol Cigarettes Marijuana Amphetamines Other Illegal Drugs	Increased parent-child monitoring a significant mediator of the effect of a divorced single parent household on reducing substance use Parent child closeness not found to be a significant mediator Parent-child conflict was the most significant mediator for increased substance use risk

20	Kopak et al. (2012).	N = 7,769 Age 12-18 years United States	Secondary analysis of existing data Longitudinal	Marijuana Cocaine Inhalants LSD PCP Ecstasy Mushrooms Heroin Prescription drugs	Greater parent-child attachment predicted lower risk of drug use Stronger family cohesion predicted lower risk of experiencing drug or alcohol related problems
21	Fleming et al. (2016).	N = 321 Age 13-14 years Northwest United States	Secondary analysis of existing data Longitudinal	Alcohol Cigarette Marijuana	Both parent and child report of overall better family management practices (parent involvement, positive parenting, consistent discipline, parental supervision) associated with less substance use. However, adolescent report the stronger predictor
22	Weiss et al. (2011).	N = 3,315 Age 13-15 years Los Angeles, CA	Cross-sectional	Alcohol Marijuana	Adolescents who reported lower levels of family functioning significantly associated with increased risk for substance use

23	Lonczak et al. (2007).	N = 97 Ages 13-19 years Seattle, WA	Secondary analysis of existing data Cross-sectional	Alcohol Cigarettes Marijuana	All three substances significantly associated with single parent households Substance use modeling and low limit setting in household significantly associated with adolescent substance use
24	Vakalahi. (2002).	N = 4,983 Age 12-17 years Utah	Cross-sectional	Alcohol Tobacco Marijuana	Family involvement, sibling use, and religious affiliation were predictors of alcohol, tobacco, and marijuana use
25	Farmer et al. (2008).	N = 6,894 Age 12-16 years United States	Secondary analysis of existing data Cross-sectional	Alcohol Tobacco Marijuana	Parental control, monitoring, and limit setting mediated the relationship between family religiosity and adolescent substance use

26	Wu et al. (2010).	N = 6,426 Age 12-17 years United States	Secondary analysis of existing data Longitudinal	Ecstasy	Parent drug use significantly predictive of child initiation of ecstasy use Living with both parents and close parental monitoring, negatively associated with initiation
27	Kothari et al. (2014).	N = 102 Age 12-20 years Oregon	Secondary analysis of existing data Longitudinal	Alcohol Tobacco Other Drug Use	Older sibling modeling of substance use significantly associated with younger adolescent sibling substance use outcomes even when controlling for individual, parent factors
28	Hoffmann et al. (1998).	N = 777 Age 10-16 years Midwestern city, United States	Secondary analysis of existing data Longitudinal	Alcohol Marijuana Other Drug use	Parental substance use disorder increases risk of adolescent substance use Reciprocal relationship found where parental substance use leads to adolescent drug use, impaired family relationships, and this path continues over time

29	Skeer et al. (2009).	N = 1,421 Age 10-22 years Chicago, IL	Secondary analysis of existing data Longitudinal	Alcohol Marijuana	Familial conflict associated with increased subsequent substance use amongst adolescents Psychological stress due to family conflict found to cause externalizing problems that mediates the association between familial conflict and substance use Internalizing problems not found to mediate substance use
30	Moon et al. (2000).	N = 609 Age 12-13 years Phoenix, AZ	Cross-sectional	Alcohol Tobacco Marijuana "Hard drugs" "Uppers" Inhalants	Adolescent's with positive family relations, low parental permissiveness, associated with decreased substance use, later age of initiation, decreased overall lifetime use

31	Valdez et al. (2006).	N = 150 Age 14-18 years Texas	Cross-sectional	Alcohol Tobacco Marijuana Cocaine Benzodiazepines	Increased family coping behaviors, such as problem-solving skills and behavioral strategies for managing difficult situations, found to decrease marijuana, cocaine, and benzodiazepine use amongst gang-affiliated female adolescents Increased positive mother-daughter relationship found to be associated with decreased alcohol and tobacco use. However, not as much with other drugs
32	Dube et al. (2003).	N = 8,613 Age 39.5-71.5 San Diego, CA	Retrospective	Illicit Drug Use	All types of abuse, emotional, physical, sexual, all increased likelihood of initiation of drug use by age 14 by 2 or more times compared to those who weren't exposed Emotional Neglect = 2.4

					Physical Neglect = 2.5 Mentally ill household member = 2.3 Witnessed violence against mother = 2.1 Substance abuse in home = 3.7 Parental divorce/separation = 2.5 Incarcerated household member = 3.3
33	Beyers et al. (2004).	N = 16,861 Age 12-17 years United States and Australia	Cross-sectional	Alcohol Cigarettes Marijuana	Adolescent perceived availability of drugs, poor family management, substance use in the family, parental attitudes favorable towards drug use, all associated with increased cigarette, alcohol, and marijuana use

34	Best et al. (2014).	N = 80 Ages 16-21 years Melbourne, Australia	Longitudinal	Alcohol Cigarettes Marijuana Opioids	Amongst adolescents receiving substance use treatment, high levels of family conflict associated with more severe substance use issues, greater psychological distress, and lower life satisfaction compared to those with lower levels of family conflict
35	Bahr et al. (2005).	N = 4,230 Age 12-19 years United States	Cross-sectional	Alcohol Cigarettes Marijuana Illicit Drugs	Parental drug attitudes, sibling drug use, and parent drug use significantly increased adolescent drug use. Parental monitoring, attachment to mother, and attachment to father were also significant, but not as much. Parental tolerance of drugs and lack of parental monitoring also associated

					with having friends who use drugs, and use by adolescent
36	Fergusson et al. (2008).	N = 1,265 Age 16-25 years New Zealand	Longitudinal	Alcohol Marijuana Illicit Drugs	Parental illicit drug use predicted later adolescent offspring illicit drug use and dependence. Pathway to illicit drug use strongly mediated by cannabis and alcohol use Exposure to childhood sexual and physical abuse significantly associated with increased risk for illicit drug use
37	Skeer et al. (2011).	N = 1,517 Age 10-22 years Chicago, IL	Longitudinal	Alcohol Marijuana	Family conflict has more significant influence on females versus males in terms of subsequent substance use development

38	Schinke et al. (2008).	N = 781 Age 11-14 years New York City	Cross-sectional	Alcohol Prescription drugs Inhalants	Mother's use positively related to daughter's use of alcohol and inhalants. Mother's who had rules against substance use, encouraged abstinence, were engaged and knew daughter's whereabouts, was protective against substance use.
39	Bahr et al. (1998).	N = 13,250 Age 12-18 years Utah	Cross-sectional	Alcohol Marijuana Amphetamines	Strong association between adolescent religiosity, absence of drug use, and absence of associations with drug abusing peers Positive association between parent-child bonding and increased religiosity

40	Samek et al. (2015).	N = 1,158 Age 11-21 years Midwestern city, United States	Secondary analysis of existing data Longitudinal	Alcohol Tobacco Marijuana	Parent involvement in early adolescence associated with reduced likelihood of subsequent adolescent substance use; no difference between adopted and non-adopted adolescents, suggesting genetics not as significant of a factor Having an older brother sibling shown to be a risk factor for subsequent use in males. Mixed gender sibling companions and sisters found to be protective. No genetic influence in regards to family composition and substance use outcome

41	Hanson et al. (2007).	N = 113 Age 14-18 years St Louis, MO	Cross-sectional	Alcohol Cigarettes Other drug use	Substance use found to be more prevalent amongst adolescents from higher socioeconomic status families than lower SES. Specifically, greater availability of financial resources was stronger predictor of substance use.
42	Mahoney et al. (2014).	N = 220 Age 12-18 years Virginia	Cross-sectional	Alcohol Cigarettes Marijuana	Adolescent religiousness found to be a powerful buffering protective factor, even in the presence of harsh parenting styles of psychological and physical aggression. Conversely, low religiousness associated with subsequent substance use
43	McArdle et al. (2002).	N = 3,984 Age 14-15 years Europe	Cross-sectional	Alcohol Marijuana Amphetamines Tranquilizers LSD Ecstasy	Living with both parents associated with reduced levels of drug use, but not drinking. Parent-child attachment, particularly mothers, was a robust inhibitor of substance

					use. Parent supervision effective in reducing drug use as well.
44	Van Ryzin et al. (2012).	N = 998 Age 12-23 years Pacific Northwest, United States	Secondary analysis of existing data Longitudinal	Alcohol Tobacco Marijuana	Higher monitoring significantly associated with decreased likelihood of use Quality of family relationships strongly predicted initiation of substance use across the transition to high school
45	Brook et al. (2009).	N = 756 Age 14-16 years New York	Secondary analysis of existing data Longitudinal	Marijuana Cocaine Prescription drugs Narcotics Inhalants Hallucinogens	Increased parent-child conflict and resulting weak parent child bond related to development of vulnerable personality attributes and subsequent substance use, and substance use disorder. Conversely, strong parent child bonds and decreased

					conflict associated with drug-resistance personality and not using drugs
46	Kuntsche et al. (2016).	N = 1,712 Ages 14-16 years Switzerland	Secondary analysis of existing data Cross-sectional	Alcohol	Adolescents in single parent families more at risk for drinking excessively and also associating with peers who drink excessively However, lack of parent-child bonding and family positive perception of excessive drinking more strongly related

47	Shin et al. (2017).	N = 1,059 Age 11-15 years Midwestern United States	Longitudinal	Alcohol Cigarettes Marijuana	Parent-adolescent prevention communication about substance use and anti-substance use norm associated with anti-substance use norm in adolescent offspring, and decreased substance use. Family expressiveness also associated with parent-child socialization processes that lead to development of adolescent anti-substance use norm and behavior.
48	Jones et al. (2015).	N = 203 Age 13-15 years Washington D.C.	Secondary analysis of existing data Cross-sectional	Alcohol Marijuana	Parent's involvement and knowledge of adolescent's whereabouts robust predictor of adolescent substance use. Decreased parent-child attachment also associated with decreased knowledge and increased adolescent substance use

49	Chan et al. (2013).	N = 886 Age 11-14 years Victoria, Australia	Longitudinal study	Alcohol	Adolescent girls showed more vulnerability and significant association between family conflict and heavy alcohol use. More specifically, exposure to conflict led to depressed mood and then heavy alcohol use.
50	Pomery et al. (2005).	N = 225 Age 10-12 years Iowa and Georgia	Secondary analysis of existing data Longitudinal	Alcohol Tobacco Marijuana	Older siblings who demonstrate behavioral willingness to use drugs significantly associated with increased drug use in younger siblings. This is thought to be through a transmission of a normative attitude towards drug use

51	Broman et al. (2008).	N = 6,504 Age 13-18 years United States	Secondary analysis of existing data Longitudinal	Alcohol Marijuana	Family structure is directly associated with adolescence substance use; single parent households at increased risk. However, parenting practices, neighborhood influences, and level of religiosity, are the significant mediating factors.
52	Wagner et al. (2010).	N = 1,433 Age 14-15 years United States	Secondary analysis of existing data Longitudinal	Alcohol Cigarettes Marijuana	Family structure directly associated with increased adolescent substance use. Single parents associated with less communication, less monitoring, less cohesion, which mediate the association between family structure and adolescent substance use.

53	Myers. (2013).	N = 2,668 Age 12-17 years United States	Secondary analysis of existing data Cross-sectional	Alcohol Illegal drug use	Family members who abuse alcohol or illegal drugs, being raised by non-family members, are risk factors for adolescent substance use. Living with parents, parents communicating disapproval and dangers of drug use, and being involved in church related activities, considered protective
54	Cruz et al. (2018).	N = 674 Age 10-17 years California	Secondary analysis of existing data Longitudinal	Alcohol Marijuana	Decreased parental monitoring associated with increased adolescent substance use Increased parent-child conflict associated with earlier onset and increased use. No significant gender differences noted.

55	Oshri et al. (2011).	N = 415 Ages 7-15 years New York	Longitudinal	Marijuana	Children exposed to maltreatment (neglect, emotional, physical, sexual abuse) in their family environment exhibited pathway of decreased resiliency, more internalizing and externalizing symptoms, and increased risk for substance use, compared to non-maltreated children
56	Cleveland et al. (2005).	N = 714 Age 10-16 years Iowa and Georgia	Longitudinal	Alcohol Tobacco Marijuana	Effective parenting behaviors, such as monitoring activities, communication about substance use, parental warmth, protected against subsequent substance use. This protection found to be strongest among families residing in high-risk neighborhoods

57	Hayatbakhsh et al. (2008).	N = 3,647 Age 0-21 years Australia	Secondary analysis of existing data Longitudinal	Alcohol Marijuana Tobacco	Initiation of substance use disorders during adolescence associated with drug using parents, poor parental monitoring and supervision
58	Moran et al. (2004).	N = 2,187 Age 15-18 years Oregon	Cross-sectional	Alcohol Tobacco Illicit Drug use	Physical, Sexual, emotional abuse all significantly associated with increased use of substances. Physical abuse doubled odds, sexual tripled, and combination of two increased odds 4 to 10 times.
59	Caballero et al. (2010).	N = 936 Age 12-16 years Mexico City, Mexico	Cross-sectional	Alcohol Tobacco Other Drugs	Sexual, physical, and emotional abuse exerted by parents on adolescent children increased vulnerability for tobacco, alcohol, and other drug use. Emotional abuse caused twice the risk, physical abuse twice, and sexual violence up to five-fold increase

60	Ali et al. (2016).	N = 18,600 Age 12-17 years United States	Secondary analysis of existing data Longitudinal	Alcohol Illicit drug	Adolescents with mothers who have comorbid mental illness disorder and SUD, are 5 times more likely than controls to develop SUD. However, this association not found with fathers, suggesting mothers have more influence. Increased parental involvement, living in two parent household, and decreased residential mobility (moving less often), associated with decreased adolescent substance use
61	Kam et al. (2013).	N = 561 Age 11-14 years Illinois	Cross-sectional	Alcohol Tobacco	Open communication between parent and adolescent associated with anti-substance abuse norms in adolescent, whereas parent disclosure of own past substance use may normalize and increase substance use behavior

62	Levy et al. (2010).	N = 30 Age 14-18 years Pennsylvania	Qualitative	Tobacco	Adolescents less receptive to discussing substance use when lectured by parents versus having open discussion. Adolescents report parent use as being a barrier to effective anti-substance use communication
63	Kulbok et al. (2010).	N = 18 Age 16-17 years Virginia	Qualitative	Tobacco	Open communication between parent and adolescent viewed as protective against adolescent initiation of smoking.
64	Reimuller et al. (2013).	N = 1,511 Age 11-18 years North Carolina	Longitudinal	Alcohol	Parental communication of permissiveness associated with higher rates of alcohol use amongst adolescents
65	Ringlever et al. (2004).	N = 358 Age 14-16 years Netherlands	Longitudinal	Tobacco	High quality substance use communication between mother and adolescent found to be protective against smoking in adolescent.

66	Van Der Vorst et al. (2010).	N = 428 Age 13-16 years Netherlands	Longitudinal	Alcohol	Increasing frequency of anti-alcohol use communication not associated with increased protection, may be detrimental, and is associated with increased use
67	Ackard et al. (2006).	N = 4,734 Age 12-18 years Minnesota	Cross-sectional	Alcohol Marijuana	Higher level of parent-child connectedness associated with decreased substance use Adolescent perception of high-parental caring significantly associated with decreased substance use Higher connectedness associated with a higher value placed on parents' opinions when making decisions about substance use

68	Carter et al. (2007).	N = 643 Age 11-16 years New Zealand	Cross-sectional	Alcohol Tobacco	Adolescent report of high-levels of connectedness within the family reported less substance use. However, medium levels of connectedness not protective and associated with binge drinking.
69	Tilson et al. (2004).	N = 428 Age 11-15 years Seattle, WA	Cross-sectional	Tobacco	High levels of parent-child connectedness found to be protective against smoking in adolescents Family connectedness not protective when parents are active smokers
70	Wall et al. (2007).	N = 1,179 Age 11-15 years United States	Secondary analysis of existing data Longitudinal	Alcohol Marijuana Hard Drugs Prescription meds Inhalants	Physical abuse, sexual abuse, neglect, and low levels of parental monitoring all associated with increased adolescent substance use Physical abuse found to be the most predictive of substance use

71	Lombardo et al. (2001).	N = 206 Age 13-17 years Detroit, MI	Longitudinal	Alcohol Other Drugs	Family environment characterized by a high level of conflict and lack of cohesion associated with increased substance using behavior amongst adolescents
72	Alvarez-Alonso et al. (2016).	N = 655 Age 13-19 years Spain	Cross-sectional	Alcohol Tobacco Marijuana Cocaine Amphetamines Sedatives Other Drugs	All types of childhood maltreatment (sexual, physical, neglect, emotional) showed connection to adolescent poly drug use. Sexual abuse (16 fold) and emotional neglect (11 fold) the most significant Substance abusing parents also found to be significantly associated

73	Lee et al. (2018).	N = 3,395 Age 12-16 years Los Angeles, CA	Longitudinal	Alcohol Tobacco Marijuana Stimulant Opioid	Decreased adolescent involvement and pleasure gained from substance-free activities and increased involvement and pleasure gained from substance-involved activities associated with increased risk of substance use for adolescents of low socioeconomic status.
74	Fagan et al. (2013).	N = 1,856 Age 9-15 years Chicago, IL	Secondary analysis of existing data Longitudinal	Alcohol Tobacco Marijuana	Economic disadvantage not significantly associated with substance use amongst adolescents when all races combined. In a race specific analysis, neighborhood disadvantage increased African American alcohol use. Having close friends who use drugs was a stronger risk factor than economic disadvantage.