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The Double Bind of Siblings in Adolescent Substance Abuse Treatment

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Abstract

Siblings have been found to be perhaps the greatest source of social risk for adolescent substance abuse, particularly when the relationship is close. But, close sibling relationships are also linked to an array of important developmental and lifelong protective benefits. Sibling closeness simultaneously poses considerable risks and benefits. These conflicting findings suggest opposite treatment directions, or a “double bind” for practice. That sibling closeness risks contagion suggests treatment that aims to *decrease* sibling closeness. On the other hand, the many lifelong and protective benefits of close sibling relationships suggests *increasing* sibling closeness when possible. Family-based treatment is recommended for adolescent substance abuse, but offers little explicit direction for involving siblings in general, and none for this double bind. This paper untangles and translates the extant literature into preliminary practice guidelines; the Sibling Substance Abuse Treatment Matrix. Important variations related to gender, and age-spacing are considered. Implications for future research and practice are discussed.

Keywords Family treatment · Sibling influence · Brothers and sisters · Substance use · Adolescence

There is now a robust body of research demonstrating that siblings substantially influence human development (Caspi 2011; McHale et al. 2013), and provide important developmental benefits (Buist et al. 2013; Kramer 2010). They also have some detrimental influences including playing a substantial role in substance use and abuse (Whiteman et al. 2014). Evidence suggests that siblings are a stronger predictor of substance use, when compared to parents and peers (McGue and Sharma 1995; Fagan and Najman 2005; Rowan 2016; Samek et al. 2017; Samek et al. 2015; Whiteman et al. 2016). Yet, sibling relationships continue to be underrepresented in substance use and abuse research, and in treatment.

The benefits of including siblings in substance abuse treatment have started to emerge (e.g., Bamberg et al. 2008;

Feinberg et al. 2012; Tsampanli and Frrokaj 2016), but strategies for incorporating siblings have been lacking. Practitioners looking to sibling research for guidance are presented with two competing findings that pose a “double-bind” challenge for treatment. A double-bind communication is a situation when a recipient receives two contradictory messages or rules in which adhering to one violates the other (Bateson et al. 1956). In the case of siblings and substance abuse, practitioners will encounter two contradictory messages. First, sibling relationships that are close or supportive are linked to compelling developmental benefits. Practitioners should aim to *increase* sibling closeness as an important treatment strategy. Second, sibling relationships that are close or supportive are linked to increased substance use and abuse. Practitioners should aim to *decrease* sibling closeness as an important treatment strategy.

This double-bind raises a conundrum for family practitioners about how to work with siblings in substance abuse treatment. On one hand, research suggests that positive sibling relationships offer a wide range of important developmental benefits (Kramer 2010), including serving as a “buffer” against the negative effects of harsh environments (Gass et al. 2007). Treatment recommendations typically include promoting positivity and warmth in sibling relationships (Caspi 2012; Feinberg et al. 2012; Kramer

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2010), or utilizing siblings in support roles (Jacobs and Sillars 2012).

On the other hand, siblings are a known risk factor for substance use (Begun and Berger 2011; Samek and Rueter 2011; Samek et al. 2015; Whiteman et al. 2016). Specifically, older children who use substances can have considerable influence on their younger siblings to engage in the same behaviors (Whiteman et al. 2014); although, recent research suggests youngers may influence their older siblings as well (Samek et al. 2017). This influence seems particularly true when the sibling relationship is warm, closer in age, and involves brothers (Samek et al. 2015; Tsampanli and Ffrokaj 2016; Whiteman et al. 2016). Practitioners may be tempted to create greater distance between close or enmeshed siblings, particularly to prevent an older using child from contaminating a younger. However, this action may deprive individuals of the many other developmental benefits associated with sibling closeness, including coping with harsh circumstances (Gass et al. 2007). Conversely, practitioners wanting to include siblings and build closeness and support may risk inadvertently promoting shared use and abuse. So, what is a practitioner to do?

This paper takes up this treatment double-bind and offers considerations for working with siblings when one or both is using or abusing. First, research on the role of sibling relationships in human development is reviewed. The importance of sibling support and its compensatory or “buffering” function will be highlighted. Second, an overview of adolescent substance abuse will be presented, followed by a review of the role siblings play in this behavior. Third, a matrix for guiding adolescent sibling substance abuse treatment will be offered. This paper concludes by putting forth recommendations for future research and practice development, with the aim of disentangling the mixed-messages implied by the extant literature. This paper aims to translate the extant literature into preliminary practice guidelines to promote the link between research and practice and provide direction for practitioners for an area in which none exists.

Sibling Influence in Human Development

Sibling relationships impact individual development (Caspi 2011; McHale et al. 2013; Solmeyer et al. 2014). During childhood, youth spend more time with their siblings than with any other relationship and play diverse roles in each other’s lives (McHale et al. 2012). They are considered the primary “training ground” for interpersonal skill development when dealing with peers and others (Kramer 2010; McHale et al. 2013). Siblings increase social understandings and perspective taking, conflict-resolution, and prosocial skills through sibling encounters (Whiteman et al. 2014). They

provide direct instructions and serve as models for navigating peers, parents, school, and neighborhoods (Kramer 2010). They also influence development indirectly such as through differential parental treatment (Buist et al. 2013). Siblings seek to be both different from and similar to each other through deidentification, niche picking, and social learning processes (Whiteman et al. 2014). However, how siblings shape each other’s development depends upon the nature of the relationship. There are some instances, for example, where sibling warmth influences shared deviance (Buist et al. 2013).

In general, positive sibling relationships contribute to beneficial developmental outcomes such as higher self-esteem (Yeh and Lempers 2004) and less internalizing problems (Buist et al. 2013). Positive sibling relationships are also associated with the development of additional social skills such self-disclosure, emotional regulation, perspective taking, understanding of others’ feelings, problem solving, prosocial behavior, empathy, and providing, as well as receiving support (McHale et al. 2013). Moreover, siblings provide a source of support, security, comfort, and confidence for coping with difficult life circumstances (Kramer 2010); as a result, reducing feelings of loneliness and depression, and enhancing self-esteem and life satisfaction (Milevsky 2005). In light of these findings, positive sibling relationships have been noted as a particularly compelling area for developmental benefits and protective or “buffering” features (Kramer 2010).

Siblings as Buffers

Supportive relationships may compensate for, or buffer against, the harmful negative effects of difficult environments. Positive and supportive sibling relationships appear to compensate for insecure parental attachment, as well as other parent–child issues (Moser et al. 2005). These issues include high stress life events, high conflict homes, divorce, poor parent relationships, foster care, and poor peer relationships. Therefore, siblings may serve to buffer against these negative social experiences. The role of siblings can vary by gender and birth order. For example, sisters seem to offer more emotional support (Rabain-Jamin, Maynard, & Greenfield, 2003); whereas, brothers provide more instrumental support (e.g., physical or monetary assistance) (Voorpostel and Van Der Lippe 2007). Similarly, older siblings appear to provide more positive support than youngers, but also engage in more negative behaviors (e.g., controlling, aggressive) (Caspi and Barrios 2016; Doron and Sharabi-Nov 2016).

Experiences within the family

Warm sibling relationships buffer against a host of negative social experiences. For instance, Gass et al. (2007) found

that sibling affection moderated the internalizing, but not externalizing, behaviors, of dealing with stressful life events (e.g., accidents, illness, deaths, divorce, and disasters), regardless of age or gender composition. Positive sibling relationships also serve a supportive function in high conflict families and against post-divorce experiences. For example, Piotrowski (2011) found that children exposed to interpersonal violence (IPV) in their families, who identified warmer relationships with older siblings, were less likely to experience negative emotional reactions (e.g., depression, anxiety). Similarly, in a qualitative study on post-divorce experiences, Jacobs and Sillars (2012) displayed that strong sibling support, regardless of age or gender composition, benefited youth experiencing chaotic divorces through the provision of shared experience and sense of stability. The results from these studies suggest that sibling support mediates against poor adjustment and provides a buffer against the negative impact of multiple social experiences.

Additional contextual experiences outside the family

Siblings also serve an important compensatory function in spaces outside the filial context. For instance, numerous studies illustrate the important buffering effect siblings have in managing problematic peer relationships. For example, East and Rook (1992) reported that socially isolated children fared better when they had a favorite and supportive sibling and were experiencing socioemotional difficulties. Elsewhere, Milevsky (2005) found that supportive sibling relationships compensated for low support from paternal figures and peers, and related to peer isolation.

Siblings also provide important supportive foundations for youth in other settings such as foster care or other out-of-home care (Wojciak et al. 2013). In a review of the research on siblings in foster care, McCormick (2010) argued that children placed together in foster care arrangements experience a range of positive outcomes, when compared to siblings in separate care arrangements. Wojciak et al. (2013), assessed the impact positive sibling relationships had on trauma and internalizing symptoms, and found that sibling relationships were strongest when youth had frequent sibling contact and perceived the relationship as positive. Moreover, positive sibling relationships mediated the effect between trauma and internalizing symptoms regardless of the siblings' age and gender composition (Wojciak et al. 2013). Therefore, present and supportive sibling relationships have the capacity to reduce the negative effects of isolation and loneliness that is associated with living in foster care or having limited peer engagement.

Implications of Sibling Support

Taken together, emerging research seems to demonstrate that positive sibling relationships provide a protective barrier against negative environmental factors. Moreover, these results support the importance of the sibling relationship for socially isolated youth in unsupportive social networks. The practice implication of this is that siblings should be included in clinical practice work for building positive relationships. However, as Kramer (2010) elegantly put it, "Not all support is good support" (p. 48). Close sibling relationships have also been identified as a source of influence for deviance, including substance use and abuse.

Substance Abuse and Siblings in Adolescence

Adolescence has been described as a critical developmental period, which entails striving for increased autonomy and negotiating relationships between parents, peers, and siblings (Bornstein et al. 2013; Lardier et al. 2018). During this period, adolescents also engage in behaviors that can be characterized as promoting both risk and opportunity (Lerner et al. 2011). One prevalent and harmful behavior is substance use and abuse (Bornstein et al. 2013).

Substance abuse has been characterized as a significant social problem and policy issue across the United States. Of all groups, adolescents are one of the most highly impacted by this epidemic (Reiter 2016). For instance, the substance using behaviors of adolescents has remained high over the last decade, which is evident by the 2.5 million adolescents who used illicit substances in 2002 (Office of the National Drug Control Policy 2015), versus the 2.3 million who used illicit substances in 2014 (Center for Behavioral Health Statistics and Quality 2015). Recent estimates also suggest that approximately 22.2 million individuals 12 years of age and older met the diagnostic criteria for substance dependence or abuse in 2014 (Hedden et al. 2015). Yet, despite some decreases in underage alcohol use since 2002, nearly 22.8% of youth 12 to 17 years of age used alcohol in 2015 (Kann et al. 2016). Consequently, family therapists often encounter adolescent substance abuse and use in their work (Tanner-Smith et al. 2013).

A range of factors that promote adolescent substance use and abuse have been identified such as parental and peer substance use (Bornstein et al. 2013), community discord (Lardier et al. 2017), alcohol outlet density (Reid et al. 2003), shared peers with siblings, and sibling substance use (Feinberg et al. 2012; Rowan 2016; Samek et al. 2015; Solmeyer et al. 2014; Whiteman et al. 2014; Whiteman et al. 2016). Siblings have emerged as a particularly

compelling source for influencing adolescent substance use and abuse.

Siblings Influence in Substance Abuse

Empirical evidence has indicated that sibling influence tends to be a stronger predictor of substance use, when compared to parents and peers (McGue and Sharma 1995; Fagan and Najman 2005; Rowan 2016; Samek et al. 2015; Whiteman et al. 2016). Older children, in particular, have a significant influence in younger siblings' substance use, particularly during adolescence (Buist 2010; Feinberg et al. 2012; Whiteman et al. 2014). This process of influence in deviance has been called “sibling contagion.”

Sibling contagion is a concept taken from the “social contagion” model (Rende et al. 2005), which has traditionally been applied to peer influences. Social contagion is a process that conceptualizes deviant behavior as transmissible, similar to a viral diseases (i.e., the more exposure the more likelihood of “catching” the illness). Shared contact and environment with ill-behaved peers or siblings promotes the spread of deviance (Rowan 2016; Slomkowski et al. 2009; Whiteman et al. 2016). Since siblings do commonly share settings, spend time together, and are easily accessible, they are at increased risk for contagion (Whiteman et al. 2014). Siblings have been found to share in deviant behaviors, including crime and violence (Krienert and Walsh 2011), risky sexual behavior (East and Khoo 2005), and substance use (Samek and Rueter 2011; Samek et al. 2015; Whiteman et al. 2014, 2016). Compared to peers, siblings are often more persistent and pervasive in their interactions (Begun and Berger 2011; Whiteman et al. 2014), which fosters resemblance for negative behaviors, such as adolescent substance abuse.

Factors That Promote Contagion

Multiple compelling direct and indirect mechanisms promote sibling contagion for substance use and abuse. Yet, despite the progression of literature over the last two decades, these processes remain only vaguely understood (Begun and Berger 2011). Such mechanisms include genetics, increased access, shared peers, and family dynamics, which includes poor parental supervision, sibling modeling, sibling aggression, relational closeness, and sibling constellation configurations.

Genetics

Genetic influence for substance use has received support in twin studies (McGuire and Segal 2013). For example, temperamental “boldness” and low self-control are both associated with deviance (Hicks et al. 2013). Evidence

suggests that the interaction between genes and environment may operate to support shared deviance. Siblings' genetic similarities also appear to contribute to shared socialization experiences (McGuire and Segal 2013). For example, shared genes may play a role in increasing shared environment, including shared peers (Hicks et al. 2013). McGuire and Segal (2013) reported that genetic relatedness, sex composition of the dyad, and age differences were correlated with having the same or similar peer groups, a risk factor for shared substance use. A fairly recent meta-analysis of twin and adoption studies, however, has suggested that environment may play a larger role than genetics in adolescence (Verhulst et al. 2015), particularly regarding the initiation of use (Samek et al. 2017). The role of genetics in adolescent substance use requires further investigation, but at this time, evidence suggests that siblings (i.e., environment), which provide access to substances and shared peers, may be more powerful than genes in substance use.

Increased access and shared peers

Having access to substances (Gilreath et al. 2013) and shared peers (McGuire and Segal 2013; Whiteman et al. 2014) increases the opportunities to use drugs and alcohol. For examples, older adolescents that use substances often make them available to their younger siblings through access (e.g., purchasing alcohol or other substances for parties or other social gatherings). This act, among others, normalizes and enables younger siblings' substance use (Averett et al. 2011; Low et al. 2012; Whiteman et al. 2016). Moreover, siblings' mutual friends are a significant part of sibling socialization (McGuire and Segal 2013; Whiteman et al. 2014) and contagion processes (McHale et al. 2013), as they also create access and opportunity (Whiteman et al. 2014). For instance, two studies, one by Slomkowski et al. (2005) and the second more recent study by Rowan (2016) reported that siblings' use of substances was related to the level of closeness and the number of mutual friends. In addition, younger siblings are more likely to engage with older siblings' peers due to their higher social status (McGuire and Segal 2013; Whiteman et al. 2014). Overall, these studies illustrate that access and shared siblings' peers increase the probability of siblings' substance using behaviors.

Family dynamics

Family dynamics represent another mechanism that promotes sibling contagion. Recent discussions in the sibling literature argue that family relationships have much to do with sibling closeness and relationship problems. For example, dynamics such as parental favoritism, marital

relationship problems, parent–child discord, triangulation, comparison of siblings, and tacit or open support for aggression, all promote negative sibling relationships and interrupt warmth and support (Caspi 2012; McHale et al. 2013). Conversely, parents who reinforce prosocial behaviors, perspective taking, shared interests, have happy marriages and model warmth and support enhance sibling warmth, support and closeness (Kramer 2010).

Poor parental supervision Although findings about the role of parental supervision in adolescent substance use are mixed, it is likely that children who are poorly supervised are more likely to engage in deviant or undesirable behaviors, like substance use (Averett et al. 2011). Research has found that “latchkey” youth who were home two or more days alone engaged in increased alcohol and substance use (Burlaw et al. 2009). Lack of parental supervision and the provision of structured activities may inadvertently support more shared time together between siblings and foster closeness. More shared time together may mean increased shared peers, more collusion, secrets, and deviant activities, and more opportunities for contagion, due perhaps to greater weight of sibling models and expectancy effects. It is important to note that shared time together may promote closeness but not warmth, a distinction that needs more research. However, parental supervision may be less of a factor than older sibling use. Averett et al. (2011) found that younger siblings, controlling for parental supervision, were more likely to use substances if they had an older sibling compared to those who did not. Differential supervision can also have a negative effect on adolescent deviant behavior. For example, closer monitoring may reduce deviance in older siblings, while providing opportunities for increased bad behavior in their younger siblings (Averett et al. 2011).

Sibling modeling Social learning and modeling, which involves observation and imitation of behaviors (Bandura 1971), is often credited for offspring substance use and abuse (Samek and Rueter 2011). Modeling also represents another sibling contagion mechanism (Feinberg et al. 2012). The perception that substance use increases social status augments the likelihood that adolescents will use them. For example, using substances may make children feel like they belong (e.g., “cool”) to a high-status group of older peers and more relatable to their older sibling (Gossrau-Breen et al. 2010). This is evident in a more recent study where the authors found that one of the main factors that contributed to younger siblings’ use of drugs and alcohol was if their older sibling used substances (Samek and Rueter 2011; Samek et al. 2015); meaning, older siblings have a significant impact on younger siblings’ use. However, it should be mentioned that older siblings’ modeling of non-use might provide a buffer against younger siblings use

(Gossrau-Breen et al. 2010; Kuntsche et al. 2009; Slomkowski et al. 2009). Such results provide evidence that siblings are a particularly important causal mechanism in the other sibling’s drug and alcohol use.

Sibling aggression Sibling conflict, violence, and abuse seem to be influential in adolescent substance use (Caspi and Barrios 2016; Feinberg et al. 2012; Low et al. 2012). Bank et al. (2004) reported that prolonged sibling hostility was found to increase antisocial and deviant behavior in adolescence. More recently, Tucker et al. (2014) emphasized that “proactive sibling aggression increases risk for problem substance use and delinquent behavior” (p. 1). Therefore, siblings who are close are often typically more conflictual than distant ones, due to increased time together and shared interests (Caspi 2012). Relational closeness appears to play a compelling role in shared deviance as well.

Relational closeness Sibling relational closeness has been linked to sibling contagion for deviance, including substance use (Feinberg et al. 2012; Gossrau-Breen et al. 2010; McHale et al. 2013; Samek and Rueter 2011; Samek et al. 2015; Solmeyer et al. 2014). Closeness has been defined as positive aspects of the sibling relationship that promotes intimacy, support, companionship, and closeness (Buist et al. 2013; Samek and Rueter 2011). Criss and Shaw (2005) examined relationship quality among adolescent males from low-income families, and reported that sibling relationship quality was a significant mediator toward risky or deviant behavior, with higher levels of warmth and closeness being related to higher levels of deviant or risky behavior. However, in some cases sibling warmth may have the opposite effect by buffering the effects of negative family and peer relationships, particularly when older siblings does not use substances (Feinberg et al. 2012; Kuntsche et al. 2009; Samek and Rueter 2011). Despite some inconsistencies, sibling closeness influences adolescent drug and alcohol use. Shared use is also linked to sibling constellation factors such as age spacing and sex combinations.

Sibling constellation factors Research has reported mixed findings regarding sex-pair combinations and its link to substance using behavior. Some have reported that same sex gender pairings were a moderating factor for relationship quality, and an influential feature for substance use among siblings (Feinberg et al. 2012). Others have argued that shared deviance may be more common among brothers than sisters or cross-sex pairs (Buist et al. 2013; McGue and Iacono 2009). Samek et al. (2015) found that among boys that sibling closeness was a risk effect (i.e., the closer the relationship, the more likely the substance use); whereas,

among girls, sibling closeness was a protective effect (i.e., associated with less substance use). One explanation may be that same gender sibling pairs are more likely to share interests and a warmer relationship (Rowan 2016; Whiteman et al. 2016). At the same time, Samek and Rueter (2011) reported that sibling emotional closeness was associated with younger sibling substance use among younger sisters, regardless of the gender of the older sibling, but not among younger brothers, regardless of the gender of the elder sibling. Despite some inconsistencies, closeness seems to be more protective (i.e., lower the risk of contagion) among sisters than brothers in regard to shared substance use (Samek and Rueter 2011; Samek et al. 2015). There is, however, a greater need to understand the process through which these effects occur.

Age spacing offers another source of influence within the constellation of sibling factors. Extant research has found that there are strong associations between the characteristics of siblings who are close in age (Rowe and Gulley 1992; Samek and Rueter 2011; Samek et al. 2015; Whiteman et al. 2014, 2016). In a recent study, Whiteman et al. (2014) found that those siblings who were closest in age were likely to model one another's behaviors and share friends. However, in this same study, Whiteman et al. (2014) found that siblings close in age were also likely to differentiate from their other sibling, particularly when it came to friends and substance use; although, this was more common among same gender pairings. Twin studies have corroborated such findings by illustrating that twins had the greatest peer overlaps (McGuire and Segal 2013) and were likely to participate in similar rates of smoking and alcohol consumption, when compared to non-twin pairings (Slomkowski et al. 2005).

In sum, siblings play an impactful role in the use and abuse of substances. Sibling resemblance for deviance suggests contagion processes, particularly when the relationship is close. The implication for practitioners is to create distance between siblings in cases of adolescent substance use. This, of course, runs counter to the implications reviewed earlier of the many benefits of positive sibling relationships. Relational closeness produces a double-bind for family therapists and other practitioners working with adolescent substance abuse.

Treatment

Family treatment for adolescent substance abuse has considerable empirical support (Liddle 2004; Miklowitz 2012; Reiter 2016). “Functional family therapy, multisystemic therapy, multidimensional family therapy, and brief strategic family therapy all have been shown to be highly effective in reducing acting-out behavior among adolescents

and/or in reducing the risk for problem behavior among their younger siblings” (Center for Substance Abuse Treatment 2004, p. 7). However, no treatment models have been offered to address the role of sibling relationships in adolescent substance abuse, particularly in regard to managing the risk of contagion and protective benefits of supportive relationships. Moreover, existing approaches provided little explicit direction or strategies regarding sibling relationships (Begun and Berger 2011; Feinberg et al. 2012).

Sibling relationships are, of course, both highly influential and heavily shaped within the family context. Family treatment that includes siblings acknowledges that brothers and sisters of abusers also experience stress, concerns and frustrations, and also make important contributions to family unity (Bamberg et al. 2008). It also gives context to strategies for interrupting patterns of contagion and for providing support for recovery. Approaches should be developed for areas of practice in which interventions are lacking, primarily relying upon empirical data and validated, via at least preliminary testing, before they are disseminated for use (Rosen and Proctor 2003). Practitioners and researchers looking to the empirical literature for guidance for involving siblings in adolescent substance use and abuse treatment work are likely to be confused by the conflicting findings described earlier. This section puts forth suggestions for utilizing siblings in substance abuse and use prevention and intervention, and for negotiating the double-bind. Most of our recommendations have empirical support, others are offered based upon implications raised by research findings, and others from the authors' experiences as practitioners. It is important to note that the research on sibling contagion for substance use and abuse has largely been cross-sectional, limiting the ability to interpret findings such as the direction of influence. That said, research provides a better alternative than untested theories or practitioners employing “trial and error” methods.

Practitioners are encouraged to specifically attend to the range of contagion processes discussed earlier in this paper, including access, shared peers, family factors, modeling, sibling aggression, sibling closeness, and sibling constellation factors. Interrupting these mechanisms is a practice strategy that will likely help prevent or minimize contagion, while maximizing opportunities to build support when appropriate.

To assist in evaluation of both substance use and sibling closeness, practitioners may want to make use of rapid assessment instruments (RAI) at intake (Corcoran and Fisher 2013). RAIs are typically brief, standardized and validated tools designed to aid clinical practice. They have been long recommended for use in clinical practice to promote efficiency, accountability, and to measure treatment progress (Levitt and Reid 1981). Substance abuse

Table 1 The Sibling Substance Abuse Treatment Matrix

Action: Decrease sibling closeness	Increase sibling closeness
Older uses substances Younger does not use *Practice consideration: Contagion more likely problematic with pairs of brothers, closer in age, and in early adolescence. Sisters may be protective and practitioners should carefully assess pros and cons of creating distance.	Older does not use substances Younger does not use substances
Older uses substances Younger uses substances * Practice consideration: Shared use is common among siblings in general. However, contagion likely more problematic with brothers than sisters or cross-sex pairs.	Older does not use substances Younger uses substances *Practice consideration: If age-spacing is close (e.g., 2 years or less), then younger-to-older contagion is a risk and should evaluate whether decreasing closeness is better course of action.

RAIs include the widely used Youth Risk Behavioral Assessment Survey ATOD scale, a 22-item scale that assesses 30-day alcohol, tobacco and other drug use (Kann et al. 2016). Sibling relationships can be quickly assessed using the well-established Sibling Relationship Questionnaire, a 42-item self-administered instrument (Furman and Buhrmester 1985). Practitioners should also consider utilizing RAI's to facilitate assessments of problematic family dynamics that may contribute to substance use and shared contagion.

Untangling the Double-Bind

In order to provide practitioners with treatment directions regarding the double-bind presented by sibling research, we have formulated a prevention and intervention matrix. The Sibling Substance Abuse Treatment Matrix (“The Matrix”) was developed using empirically-based knowledge regarding sibling closeness, developmental benefits and contagion. The Matrix is not meant to be prescriptive and applied rigidly to all sibling substance abuse treatment with adolescents, but rather a guiding framework. Many factors must be considered in practice and the Matrix is offered to be integrated as part of a comprehensive treatment approach. Such frameworks are helpful when little treatment direction exists and preferable to “trial and error” approaches.

The Matrix provides strategies for working with four conditions related to which sibling(s) is using substances (i.e., older, younger, both or neither), and whether sibling relational closeness should be increased or decreased. Gender composition and age-spacing considerations are included in these conditions as important contingencies to consider in practice. Treatment decisions typically consider multiple factors and again, the matrix is offered as a guiding framework and not to be used in rigid fashion. The Matrix is offered as a way to think about working with siblings and can be integrated as a strategy with most family treatment

approaches. Similarly, it can be used in individual work as discussions about how to manage sibling relationships. As an interpretive note, the label “older” does not necessarily indicate “oldest,” but instead refers to any earlier birth order position in reference to a sibling (Table 1).

Older using and younger not using: decrease sibling closeness

When an older child is using substances such as alcohol, drugs and cigarettes, there is an increased likelihood that their younger sibling will also use and at an earlier age. This seems to be particularly evident when the relationship is perceived as close, near age-spacing, and in brothers more than sisters or cross-sex pairs (McGue and Iacono 2009; Rowe and Gulley 1992; Samek et al. 2015; Whiteman et al. 2016). The evidence that sisters are similar for deviance is mixed and they may even serve a protective influence (Samek and Rueter 2011). In addition, younger siblings can influence older sibling substance use, particularly if close in age (Samek et al. 2017)

Researchers have argued that this pattern of resemblance has clear implications for prevention work – i.e., that younger siblings can be identified “at risk” for substance use and abuse when an older sibling’s abuse has been identified (e.g., Donovan and Levin 2011; McGue and Iacono 2009; Samek et al. 2015; 2017; Slomkowski et al. 2001; Whiteman et al. 2016), particularly when the relationship is close. Samek et al. (2017) recently reported that this contagion pattern may be more powerful in early adolescence, compared to late adolescence and early adulthood when relational time together is decreased.

Prevention efforts, which can be achieved using various and/or multiple modalities (e.g., individual, family, or group treatment, and community based programming), should be aimed at decreasing relational closeness. This may include interrupting younger children’s time with their older substance using siblings. “That is, prevention efforts are aimed

at the non-using sibling. The using sibling may or may not be in treatment for prevention steps to be taken. For example, families and schools that identify a child using substances may take “prevention” steps of creating greater sibling distance in order to minimize the risk that the younger will start to use as well.” Less time together should work to interrupt the mechanisms of contagion discussed earlier (e.g., access to substances, observed expectancy effects, shared peers, modeling). Practitioners can work with families to help younger children identify separate and healthier (e.g., more age-appropriate, less deviant) peer groups, and educated on the realistic risks and benefits of substance use. We recommend that practitioners structure treatment sessions so that siblings are not seen together, to facilitate the process of relational disengagement. That said, in cases where siblings are assessed as potentially protective and helpful for addressing the target adolescent’s substance use (e.g., older sisters who are not close in age), practitioners may find it to be more beneficial to arrange conjoint sessions.

Family therapy often serves preventative functions by helping to stabilize chaotic and stressful environments, making life better for siblings. Although not well explored or investigated, it may be that lack of supervision and boredom play a role in sibling resemblance for deviance, as it does in sibling aggression (Caspi and Barrios 2016). Helping families provide oversight and structure can serve to interfere with time open for deviant undertakings. Educating parents about their children’s heightened risk of drug and alcohol use can increase understanding of the need to take action and intervene with their younger children (East and Chien 2013).

Group programs for non-using family members (e.g., support groups, Al-Anon) can include content to help prevent use in younger siblings by talking about heightened risk and the potential mechanisms of shared deviance. From a community-based prevention perspective, public education campaigns can be effective in raising awareness about sibling resemblance for substance use and abuse, and provide families with information about resources that aid in prevention. A “substance use and abuse is contagious” campaign may promote guardian action. Of note, these recommendations should be considered short term, since siblings can also be used as a form of recovery capital (Cloud and Granfield 2008) to support the sobriety of the using sibling.

Older not using, younger not using: increase sibling closeness

Sibling relationships can help prevent substance use when older siblings do not have substance use problems (Begun and Berger 2011; Rowe and Gulley 1992; Samek et al.

2015). In such cases, when siblings are not close, building warmth and support between siblings represents a potentially potent prevention strategy. This may be particularly important when a parent is a substance abuser (Reiter 2016). Positive sibling relationships may also serve to buffer from the negative influence of peers (Samek et al. 2015).

The absence of adolescent substance use problems in families may seem to indicate that sibling relationships do not necessitate attention. However, practitioners should consider the developmental benefits of positive sibling relationships in family treatment for non-substance use problems. An exception to this approach is if any of the siblings are engaged in other forms of deviance, which may also be contagious. In sum, building sibling closeness is a recommended prevention strategy when no children are using substances, older siblings are good models, and other forms of deviance are absent.

Older using and younger using: decrease sibling closeness

Strategies to decrease sibling closeness and contact are recommended when multiple children in families are engaged in adolescent substance abuse. Practitioners should actively talk with parents about helping siblings engage in separate activities and spend less time together. Diminishing time together and facilitating different interests should interrupt contagion processes such as access, modeling, observed expectancy effects, shared peers, and coercive relational exchanges, all supported by spending time together. In our practice experience we have found that adolescent siblings that spend great deals of time playing video games and watching media, with no supervision, are often engaged in substance use; for which empirical findings have corroborated (e.g., Ream et al. 2011). As practitioners, we have heard clients state that these activities help build sibling bonds. However, this lack of structure promotes shared opportunities for external sources of stimulation, such as drugs and alcohol. Involvement in family activities (i.e., outside of playing video games and watching media) seems to lower engagement in substance use (Coley et al. 2008). The increased autonomy of adolescence often translates into less structure and parental involvement. Practitioners should encourage parents to increase their involvement and direct their offspring into different activities, when possible. Providing structure and directing children into separate supervised activities to keep them busy such as jobs, after-school programs, and sports, should limit contagion processes.

It is important to note that attempts to increase distance are challenging, and to consider that older children may have histories of authority over their younger siblings in households with poor parental supervision, which may make it difficult for younger children to function without their leadership. Practitioner efforts to decrease sibling

closeness should attend to and bolster younger siblings' abilities to operate without their older siblings' direction and perceived support. An additional line of investigation regards how adolescent substance use and abuse is being financed. Siblings will collude in efforts to finance their substance use. Theft of family items (Boden et al. 2013) and prostitution are not uncommon strategies for accessing money for illicit purposes (Reid and Piquero 2014). Decreasing sibling closeness may help to interrupt funding. Parents, often unwittingly and sometimes knowingly, financially support their children's substance use by providing them with allowances, credit cards, and not supervising spending.

Decreasing sibling closeness also suggests separating siblings in family treatment, including detoxification and rehabilitation programs. Siblings may collude against authority and treatment, and conspire to undermine efforts to progress toward health. Additionally, one sibling may actively attempt to sabotage another's attempts to stop using. Or, they may make efforts to protect one another by trying to deceive authority (e.g., practitioners, parents) about each other's use, feeling that they are simultaneously defending and helping their siblings (such as when faced with intake and assessment questions about use). Separating siblings in treatment may lessen opportunities to interfere with undercutting behaviors. This recommendation for separating siblings in treatment is not to suggest that family therapy should not be utilized. Rather, family treatment is necessary to support processes aimed at decreasing sibling closeness and contagion. Moreover, sibling resemblance for substance use may not be directly related to the sibling relationship itself, as there are other sources of influence including, of course, parents. Practitioners must therefore attend to additional family and contextual (e.g., neighborhood) dynamics that promote deviance. Treatment should use conjoint family sessions in combination with individual meetings. If only individual treatment is possible, practitioners can raise discussions of how to increase or decrease closeness with siblings accordingly. Finally, again, decreasing siblings' relational closeness should be viewed as a temporary approach until they have made sufficient progress to support each other in recovery.

Older not using and younger using: increase sibling closeness

Building sibling closeness is recommended in families where younger offspring are substance users and their older siblings are not. Older siblings represent a unique source of support for young siblings and other family members (O'Farrell and Fals-Stewart 2003). Siblings in this role have been found to lessen substance-related setbacks and aid in the recovery process (Zweben et al. 2008). Bringing non-

using siblings into substance abuse family treatment is associated with lower stress and higher family satisfaction (Bamberg et al. 2008). Together, siblings can identify and plan strategies for negotiating relapse triggers (e.g., locations, friends) to support abstinence. Siblings may also have greater ability to identify warning signs of relapse, when compared to parents (Begun and Berger 2011)

Non-using adolescents may need education about substance abuse and *how* to be supportive; as it is not uncommon for siblings to see addiction as more blameworthy than other diseases (Kymalainen and Weisman 2004). Therefore, non-using siblings may need to be taught how confrontation, avoiding, belittling or telling to "man up" are typically unhelpful actions. Practitioners are encouraged to explore non-using sibling's resentments, guilt, anger, care-taking burdens, experiences of being threatened both physically and psychologically, and neglect by other family members (O'Farrell and Fals-Stewart 2003). Encouraging support group use for non-using siblings (e.g., Al-Anon, Narc-Anon) can promote understanding and coping strategies, and serve as a helpful adjunct to therapy (Begun and Berger 2011). It is important to note that although the more common contagion pattern is older siblings influencing their younger, younger also influence older siblings' engagement in deviance, particularly if they are 1.5 years apart or less (Samek et al. 2017; Whiteman et al. 2014).

It is also essential to explore how non-using older siblings' behaviors in family dynamics may support younger use, considering that filial dynamics such as protecting parents (i.e., hero status) or having rigid complementary "good" and "bad" labeling can engender animosity and hostility (Caspi 2012). Hostile relationships are not good sources of support. Taken together, building sibling closeness may involve attending to problematic dynamics that interfere with sibling positivity. Rigid complementarity, parental favoritism, and marital conflict can also be addressed as part of treatment in order to build sibling positivity and support.

Conclusion

Adolescent substance abuse is a prevalent and serious problem and siblings have been identified as perhaps one of the most powerful social sources of influence (Samek et al. 2015, 2017). Family practitioners receive little if any information on sibling relationships in their formal education and training. Sibling content is rarely included in graduate programs or textbooks (Caspi 2011). No treatment offerings offer explicit direction for how to address sibling relational dynamics and substance use. For practitioners looking for direction in this regard, a review of the extant

literature raises a treatment double-bind regarding whether or not build or disengage siblings. To address this void and to untangle the double-bind, the empirically-derived Sibling Substance Abuse Treatment Matrix was presented.

The Matrix is offered as a “first step” in the development of guidelines for treating sibling substance abuse. Further formal development of the guidelines through process research designs, followed by tests to empirically validate the Matrix is needed.

Our practice recommendations are limited by the current state of the extant literature. More research on sibling closeness in general is needed, particularly in the context of family relationships. For example, explorations of why it is that some close sibling pairs engage in deviance while others do not would be helpful for informing practice. We believe this may be attributed to the lack of consistent language used to describe sibling closeness. It may be the time spent together in deviant activities can create a sense of closeness, but at the same time be without warm feelings.

Cross-cultural explorations of sibling relationships and closeness would also be beneficial as roles and practices related to sibling closeness and support likely differ across groups. Some have cautioned that family and substance abuse treatment risks underestimating the roles of culture and gender, and that ignoring power differentials related to intersectionality (i.e., the interconnected nature of social categories such as race, class, and gender; Earnshaw et al. 2015) risks harming families (Center for Substance Abuse Treatment 2004). Better understanding of how gender roles link to closeness, buffering, and contagion are needed. Such research should help inform culturally competent sibling treatment practices, which have been lacking. Future development of The Matrix should include how to integrate contextual factors (e.g., race, socioeconomic status, culture).

While considering these lines for future study it is also important to note that despite the role of siblings in substance use and abuse, offspring similarity for substance use may not necessarily be the direct influence of siblings but a function of family dynamics and contextual concerns. Therefore, future studies on siblings need to also consider the constellation of familial dynamics and other contextual factors that may be linked to adolescent substance abuse.

This paper also represents a somewhat unique example of connecting practice to research, and how practitioners can make use of research to inform treatment considerations. It does not set out to offer new research but instead, to translate the extant literature into usable strategies for practitioners. The disconnect between research and practice has been a longstanding concern in the applied social sciences (Baker and Young 2016). Although more research, particularly prospective study, is needed on the role of sibling relational closeness and resemblance for deviance, utilizing existing empirically-derived knowledge to

formulate treatment strategies is preferable to “trial and error” approaches, when no formally tested models exist. A major challenge to translating the research to practice is the definitional inconsistency regarding closeness, considering a variety of terms are used in the research literature such as warmth (Buist et al. 2013; Rende et al. 2005), support (Kramer 2010), closeness (Milevsky 2005), affection (Gass et al. 2007), and bonding and attachment (Samek and Rueter 2011; Samek et al. 2015).

In sum, a promising guiding framework for working with siblings and adolescent substance abuse is offered here. We propose this Matrix for development, testing, and to offer some initial guidance to practitioners engaged in adolescent substance abuse work. While this matrix and the reviewed studies are by no means a comprehensive overview of all factors related to sibling dynamics, this discussion is an important addition to the family therapy literature base.

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