Understanding the impact of mentoring on substance abuse patterns in adolescents

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Understanding the impact of mentoring on substance abuse patterns in adolescents

Disciplines
Occupational Therapy | Pediatrics

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Understanding the impact of mentoring on substance abuse patterns in adolescents

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Review date: 11/28/14

CLINICAL SCENARIO

Drug and alcohol use by adolescents has been shown to have a myriad of negative effects, including impairments in attention, processing speed, and sleep quality (Jacobus, Bava, Cohen-Zion, Mahmood, & Tarpert, 2009); executive functioning, memory, and visuospatial skills (Thoma et al., 2011) and increasing the risk of sexually transmitted infections (Bryan, Schmiege, & Magnan, 2012). Ultimately, substance use can impair participation and engagement in life, and can have effects on the individual, family, and community levels (Stoffel & Moyer, 2004). Because of the potential for deep and wide effects on functioning, substance abuse is an area of concern and intervention for occupational therapists. The National Institute on Drug Abuse [NIDA] statistics on adolescent drug use show what while there have been declines in use of some substances among 8th 12th graders, (Table 1), there have been increases in others, and that substance use by adolescents continues to be a national concern.

<table>
<thead>
<tr>
<th>Substance</th>
<th>8th grade</th>
<th>10th grade</th>
<th>12th grade</th>
<th>2010 – 2011 change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana</td>
<td>7.2</td>
<td>17.6</td>
<td>22.6</td>
<td>-0.7/+0.9/+1.2</td>
</tr>
<tr>
<td>MDMA</td>
<td>0.6</td>
<td>1.6</td>
<td>2.3</td>
<td>-0.5/-0.3/+0.9</td>
</tr>
<tr>
<td>Heroin</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>-0.0/0/0</td>
</tr>
<tr>
<td>Methamphetamines</td>
<td>0.4</td>
<td>0.6</td>
<td>0.7</td>
<td>-0.3/-0.1/0</td>
</tr>
<tr>
<td>Hallucinogens</td>
<td>1.0</td>
<td>1.4</td>
<td>1.6</td>
<td>0.0/-0.1/-0.2</td>
</tr>
<tr>
<td>Tobacco (cigarettes)</td>
<td>6.1</td>
<td>11.8</td>
<td>18.7</td>
<td>-1.0/-1.8/-0.5</td>
</tr>
<tr>
<td>Alcohol</td>
<td>12.7</td>
<td>27.2</td>
<td>40.0</td>
<td>-1.1/-1.8/-1.2</td>
</tr>
<tr>
<td>Inhalants</td>
<td>3.2</td>
<td>1.7</td>
<td>1.0</td>
<td>-0.4/-0.3/-0.4</td>
</tr>
<tr>
<td>Cocaine</td>
<td>0.8</td>
<td>0.7</td>
<td>1.1</td>
<td>+0.2/-0.2/-0.1</td>
</tr>
<tr>
<td>Crack cocaine</td>
<td>0.5</td>
<td>0.4</td>
<td>0.5</td>
<td>0/-0.1/-0.2</td>
</tr>
</tbody>
</table>

Note: Data based on sample of 50,000 middle and high school students from 420 public and private schools in the U.S. (University of Michigan, 2011)

Occupational therapists could see clients with substance abuse disorders in almost any setting, with the resulting impairments being primary or secondary to original referring condition (Stoffel & Moyer, 2004). Stoffel and Moyer’s (2004) review of evidence-based occupational therapy interventions for substance abuse indicated that there are four main categories of interventions used by occupational therapists; brief interventions...
cognitive-behavioral therapy, motivational strategies, and 12-step treatment programs. These techniques have been shown to be effective as occupational therapy interventions, but there are gaps in understanding how effective these methods are with adolescents. In addition, these interventions are designed more to treat, rather than prevent, substance use disorders. There are many programs outside of occupational therapy that have been developed specially to prevent substance abuse in adolescents, and these programs have been developed and implemented at the national, local, or organizational level. Examples include school-based programs, national awareness campaigns, and community resources. Each of these programs can have different and multiple several components, but one common component featured in many of these programs is adolescent mentoring (Sipe, 2002). Much like substance abuse, mentoring is a complex relationship whose effects are hard to single out and understand, but there do seem to be specific themes (e.g. length and type of mentoring relationship) that correlate with better outcomes (Sipe, 2002). This critically appraised paper was an effort to review the current research on mentoring and substance abuse prevention in adolescents and to examine its potential as a therapeutic intervention for occupational therapists.

FOCUSED CLINICAL QUESTION

Does mentoring reduce the likelihood of substance abuse in adolescents compared to adolescents who do not receive mentoring?

SUMMARY OF SEARCH

- Fifteen out of 21 studies were chosen, 11 of which investigated mentoring as a primary or secondary method of substance use prevention for adolescents (in conjunction with other outcomes), and 4 of which examined the effects of mentoring adolescents on risk behaviours in general.
- The Thomas, Lorenzetti, and Spragins (2011) study was determined to be the best evidence. In their review they assessed the efficacy of mentoring interventions in preventing drug and alcohol use by adolescents. 233 studies were considered, but only 4 utilized due to inclusion criteria of the authors (they only included randomized controlled trials/cluster-randomized controlled trials that used mentoring as an intervention and substance use as an outcome measure). The sample size for all four studies was 1,994 adolescents aged 13-18, primarily male and of minority status. Two of the studies examined in the review found that mentoring reduced rates of alcohol use, and one study found that mentoring reduced drug use, although Thomas, Lorenzetti, and Spragins caution that these results may have limited clinical implications due to the population sampled and the methods used.
- Of the other papers reviewed for this appraisal, 6 found mentoring to be effective in reducing drug and alcohol use in adolescents, and 9 found no significant impact.

CLINICAL BOTTOM LINE

The research presented does not support a clear link between the presence of a mentor and a decreased likelihood of substance abuse in adolescence; however, it does suggest that the quality and duration of mentorship may affect outcomes. Specifically, in several studies, mentors who received training and support were associated with more positive outcomes, as were mentor-youth relationships lasting more than one year. Occupational therapists who wish to use mentoring as an intervention strategy should consider the type of training and support they will provide to mentors as well as length of treatment during the program planning process.

Important note on the limitation of this CAT

This critically appraised paper (or topic) has been peer-reviewed by one other independent person/lecturer

SEARCH STRATEGY

Terms used to guide the search strategy

- **Patient/Client Group:** Adolescents (age 11-18)
- **Intervention (or Assessment):** Mentoring by natural or assigned non-parental adult
- **Comparison:** Non-mentored adolescents
- **Outcome(s):** Substance use (tobacco, drugs, and alcohol)

<table>
<thead>
<tr>
<th>Databases and Sites Searched</th>
<th>Search Terms</th>
<th>Limits Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medline</td>
<td>All databases were searched keyword “adolescent” AND, “mentors” AND “substance abuse OR substance use”</td>
<td>Excluded studies published before 1996</td>
</tr>
</tbody>
</table>
INCLUSION and EXCLUSION CRITERIA

**Inclusion Criteria**

Terms: young adults, peer to peer/peer, high-risk behavior, problem behavior, success, at-risk youth, substance abuse, minority status, 12-18, male/female, English

Papers published 1996-present

Papers pertaining to alcohol and drug abuse

Papers focusing on adults mentoring adolescents

**Exclusion Criteria**

Papers published before 1996

Papers focusing on non adolescent populations

Papers not addressing substance abuse

RESULTS OF SEARCH

A total of **15** relevant studies were located and categorised as shown in Table 1 (based on Levels of Evidence, Centre for Evidence Based Medicine, 2011)

**Table 2: Summary of Study Designs of Articles Retrieved**

<table>
<thead>
<tr>
<th>Study Design/Methodology of Articles Retrieved</th>
<th>Level</th>
<th>Number Located</th>
<th>Author (Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic Reviews of randomized controlled trials, cross-sectional, cohort studies</td>
<td>I</td>
<td>1</td>
<td>Thomas, et al., 2011</td>
</tr>
<tr>
<td>Cohort studies, non-randomized controlled cohort</td>
<td>III</td>
<td>2</td>
<td>Ahrens, et al., 2008, Haddad, et al., 2011</td>
</tr>
<tr>
<td>Case series (before and after), case-control studies</td>
<td>IV</td>
<td>4</td>
<td>Johnson, et al., 2011, Black, et al., 2010, Kaplan, et al., 2009, Hurd, et al., 2010</td>
</tr>
<tr>
<td>Expert opinion</td>
<td>V</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Phenomenology Ethnography</td>
<td>N/A</td>
<td>1</td>
<td>Utsey, et al., 2003</td>
</tr>
</tbody>
</table>
The following study/paper was identified as the 'best' evidence and selected for critical appraisal. Reasons for selecting this study were:

- Highest level of evidence - Systematic review of randomized controlled trial studies
- All studies included in the systematic review looked at the effects of mentoring on adolescence substance use
- Obtained statistically significant results regarding research question

**SUMMARY OF BEST EVIDENCE**

Table 2: Description and appraisal of Mentoring adolescents to prevent drug use [Intervention review] by Thomas, Lorenzetti, & Spragins, 2011.

**Aim/Objective of the Study/Systematic Review:**

The purpose of this study was to assess the efficacy of mentoring interventions of varying kinds to prevent alcohol and drug use in the adolescent population.

**Study Design**

Thomas and colleagues performed a systematic review of randomized controlled trials and cluster-randomized controlled trials.

**Search Strategy**

Searches for articles were performed on electronic bibliographic databases, electronic Grey literature databases, targeted Internet searches of organization websites. Authors also searched literature reference lists of articles and mentoring experts’ opinions were also used to further locate additional resources.

**Selection Criteria**

Studies considered for this review were randomized controlled trials (RCTs) or cluster-randomized controlled trials (C-RCTs). Studies were also chosen based on the types of participants. The characteristics of participants considered for this systematic review were adolescents between the ages of 13 and 18 years of age. Studies with participants 19 years and older were excluded due to the inability to separate 19-25 year olds from the rest of the adult population that uses tobacco. All the studies selected utilized mentoring as the intervention to reduce or deter alcohol and drug use. All the studies were also required to have a control group that either received no intervention or the standard health curriculum, substance education curriculum normally used in schools, individual counseling, or support groups.

**Excluded studies**

Of the 233 studies that were reviewed, 229 were excluded. Studies were excluded if the researchers were unable to separate the effects of mentoring and other interventions, outcome measures were unrelated to alcohol and drug use, did not use a control group, or mentoring program did not specifically apply to the adolescent population.

**Setting**

All studies were performed within the United States. One study took place in Springfield, Massachusetts (Aseltine et al., 2000) and another in Philadelphia (Taylor et al., 1999)

**Participants**

A total of 1,994 adolescents were recruited through all four studies included in the systematic review. All of the four studies randomized participants into the control group, intervention group, and, if applicable, a standard curriculum group. 839 were in the intervention (mentoring) group, 315 were included in an intervention group that included mentoring and a curriculum, and 840 were in a control group (no intervention).

Participants in the studies included adolescents between the ages of 13 and 18. Other studies that included adolescents between ages 19 and 25 were too difficult to separate from the rest of the adult population. All
Specific Characteristics for Reviewed Studies:
Aseltine et al. (2000) - 33% living under poverty line, 72% of ethnic minority background, sex demographics were not included in the study
Grossman et al. (1998) - All participants from single-parent households (required for participation in the Big Brothers, Big Sisters program), 62.4% male, 56.8% minorities
Rosenblum et al. (2005) - 51% male, 91% of ethnic minority background
Taylor et al. (1999) - 47% male, 84% of ethnic minority background

Intervention Investigated

Control
Each of the studies employed the use control group as a comparison group for the experimental groups. All of the four studies randomly assigned participants to control and experimental groups. Control groups either consisted of no intervention, use of a standard health education curriculum, alcohol and drug education curriculum that is normally used in the education institution that the adolescents attend, or an individual counseling session or support group.

Experimental
The experimental groups of the four studies received some variation of a mentoring program. The participants in the experimental group all received mentoring for at least one year. In two RCTs, mentees were paired with older adults from the community for the duration of their sixth grade year and during participation in a community service activity, and the Positive Youth development Curriculum (Aseltine et al., 2000; Taylor 1999). Rosenblum et al.’s (2005) experimental mentoring intervention weekly meetings with older peers, recreational activities, field trips, and in-house activities (storytelling, coping strategies for dealing with peer pressure situations, arts and crafts, etc.). Grossman et al.’s (1998) mentoring program took place through the Big Brothers, Big Sisters organization. The mentor relationship informally functioned as a friendship between the mentor and mentee with 42% of participants meeting weekly and 24% meeting at least three times a month.

Outcome Measures (Primary and Secondary)
The primary outcome measures that were used by the four studies were:

- Abstinence of as measure by the number of number of participants that did not start using drugs and/or alcohol.
- Use of alcohol or drugs measured by the number of participants who use alcohol or drugs at least on a monthly basis.
- Decrease in consumption of drugs and/or alcohol as measured by the number of participants who reported reduced consumption.
- No involvement in drug- or alcohol-related aggression or accidents.

The measures that were used by studies were varied. One such outcome was the frequency of substance use (monthly, weekly, daily). The different frequencies were used by each study different perhaps as a function to capture the frequency of use that may increase with age of the adolescent.

Main Findings
Due to differences in outcome measures, the authors were unable to pool data from all four studies (Thomas et al., 2011).

Alcohol Use
For alcohol use, Thomas et al. were able to pool statistics from Grossman et al.’s (1998) and Rosenblum et al.’s (2005) studies. The relative risk was calculated for to compare mentoring to no intervention = 0.71 (95% CI = 0.57 to 0.90, P=0.005). The results of Aseltine et al. (2000) did not have significant results for mentoring, the control group and the prevention curriculum.
Drug Use
In the study conducted by Grossman et al. (1998), they found that 6.3% of their intervention group had to start to use drugs in the duration of the study compared to 11.5% of the control group (RR=0.54; 95% CI = 0.35 to 0.83; Z=2.84, P=0.005). Two of the other RCTs did not find that mentoring had a significant effect on drug use (Aseltine et al., 2000; Rosenblum 2005). When the mean differences were compared between the experimental group and the control group, which received curriculum and the community service intervention, no significant difference was found (mean difference = -0.08 (-0.31 to 0.51; Z=0.68; P=0.50) (Aseltine et al., 2000). Rosenblum et al. (2005) also found no significant differences between groups (RR=0.64; 95% CI = 0.04 to 9.97; Z=0.32, P=0.75).

Substance Use
Taylor et al. (1999) was the only study that did not separate alcohol and drug use as an outcome measure. Taylor et al. (1999) found no difference in the frequency of substance use in the last two previous months between the mentoring and the control groups. At the three year follow up assessment the frequency of substance use in the previous two months was 0.17 in the program group, 0.12 in the mentoring group (P<0.056) and 0.12 in the control group. Students who received exceptional mentoring compared to participants that received average or marginal mentoring "had better reactions to situations involving drug use" (p≤0.018) and more knowledge about substance abuse (p≤0.018). However, they did not find a significant differences between groups in substance use (Thomas et al., 2011).

Original Authors’ Conclusions
Thomas and colleagues (2011) concluded the results gathered from the four studies show little evidence that the use of mentoring has resulted in a reduction in alcohol or drug use in the adolescent population. However, no harms were documented during the intervention. Of the four studies, only two of the RCTs found that the intervention led to significantly less alcohol and drug use. It was also of note that Thomas et al. chose mentoring programs that aimed at establishing long-term mentor relationships (at least one year) and were committed to training, assessing, and monitoring their mentors. These factors were identified as factors that modify the effects of the mentoring intervention.

The authors also identified several implications for research based on the synthesis of results of the four reviewed studies. The results of the four studies indicated that there is low risk for bias suggesting that a more rigorous RCT should be performed regarding the effect of mentorship with particular attention to the randomization process, blinding evaluators, and having complete data. It is also suggested by Thomas et al. (2011) that populations that are not of ethnic minority background and of low socioeconomic status should also be studied to compare effects. The intervention of mentoring is highly variable between studies. In order to be able to study the effects of the mentor-mentee relationship, it is suggested that the mentoring intervention be standardized. The authors also encouraged further use of co-interventions along with mentoring to identify the maximum benefits of mentoring.

Critical Appraisal

Validity
The authors used a strict inclusion criteria for selecting articles to include research that provided the highest level of evidence (Thomas et al., 2011). Including RCTs in the systematic review ensures that the results of the experimental group have not occurred by chance through random assignment of participants and use of a control group. The combined sample of each of the four studies provided a sufficient amount of data to determine statistical significance and reliable results. Thomas et al. (2011) recommended that future research studies should put more stringent mechanisms in place to avoid biases to either support or challenge the current mixed results produced by other RCTs. It was also suggested by the authors that greater efforts should be put into standardizing the mentoring intervention, and using valid and reliable scales to measure outcomes of intervention.

Although the RCT research design is touted as producing one of the highest levels of evidence, the nature of quantitative studies can force data into numbers that may not otherwise capture the mechanisms of how mentoring affects this population. While greater standardization of the mentoring intervention might help researchers determine the specific components of mentoring that reduce substance use, this could take away from the individualized approach that contributes to a successful mentor relationship. Quantifying the effects of the mentoring intervention does not capture what an effective mentorship looks like. A ethnographic study would be more appropriate.
**Interpretation of Results**

The systematic review of the RCTs had incomplete data due to participant drop out in individual studies. However, authors of the RTCs were contacted and no missing data was replaced in conducting statistical analyses. Risk of bias was also assessed during review of RCTs. It was concluded by Thomas et al. (2011) that it was difficult to discern the level of selection bias for all reviewed studies due to either lack of performance or insufficient reporting. Overall, the results concluded that there is not substantial evidence to suggest mentoring as an effective intervention for reducing substance use in adolescent populations, particularly those of low socioeconomic status and ethnic minority background.

**Summary/Conclusion**

Three RCTs (Aseltine et al., 2000; Grossman et al., 1998; Rosenblum et al., 2005) provided results that looked at the effect of mentoring on alcohol use. Aseltine et al.’s (2000) results did not find a significant difference between their mentoring group and the control group in alcohol use. Statistical pooling for drugs use could not be performed due to a lack of compatibility in outcome measures used by each study. However, one RCT (Grossman et al., 1998) found a reduction in use of “illegal drugs” in the mentored group. Two other RCTs did not find any statistically significant results in reducing drug use between the group that received mentoring versus the control group (Aseltine et al., 2000; Rosenblum et al., 2005). The statistical analyses performed by Thomas et al. were appropriate given the data that was presented from each of the four RCTs/C-RCTs and due to the lack of compatibility between various outcome measures.

The mixed results of the four studies selected for review demonstrates the lack of understanding the mechanisms of how mentoring affects adolescents’ substance use. The complexity of the factors that affect adolescent substance use is still being investigated making it difficult to discern the magnitude that mentoring can have on the decisions adolescents make. Research on the effects of mentoring should be directed to looking at the nature of the mentor-mentee relationship, what does an effective relationship look like, who is an effective mentor, and who are the adolescents that might be receptive to mentoring. These factors may shed light on the recruiting process for mentors as well as inform the training procedure for the mentor to have the necessary tools to initiate an exceptional mentoring relationship. While the results are not enough to substantiate mentoring as a gold-standard intervention for practice, mentoring can still be recommended utilized as a co-intervention for building adolescents’ resilience against substance use and possibly other maladaptive behaviors.

**Table 3: Characteristics of included studies**

<table>
<thead>
<tr>
<th></th>
<th>Study 1</th>
<th>Study 2</th>
<th>Study 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intervention investigated</strong></td>
<td>Mentoring</td>
<td>Mentoring of homeless youth</td>
<td>The BRAVE substance abuse prevention program (included a mentoring component)</td>
</tr>
<tr>
<td><strong>Comparison intervention</strong></td>
<td>None</td>
<td>No mentor, substance abuse treatment only</td>
<td>Non-participation in the BRAVE curriculum</td>
</tr>
<tr>
<td><strong>Outcomes used</strong></td>
<td>Alcohol and Drug Use</td>
<td>Frequency and consequences of drug use</td>
<td>Alcohol, drug, and tobacco use</td>
</tr>
<tr>
<td><strong>Findings</strong></td>
<td>Youths with an adult mentor found to be less likely to smoke more than 5 cigarettes per day. No significant effect was noted on alcohol use or other drugs. Youth with a mentor were also less likely to participate in the risk behaviors measured.</td>
<td>There were no significant relationship found between baseline measures for substance use, depressive symptoms, problem behaviors and the number of mentoring sessions attended. Substance use decreased in both groups.</td>
<td>Youth in the BRAVE program were less likely to use alcohol and marijuana than the control group; no other significant results were found.</td>
</tr>
<tr>
<td>Study 4</td>
<td>Study 5</td>
<td>Study 5</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>Hanlon et al., 2009</td>
<td>LoSciuto et al., 1996</td>
<td>Rhodes et al., 2005</td>
<td></td>
</tr>
<tr>
<td><strong>Intervention investigated</strong></td>
<td>Village Model of Care intervention that included structured group mentoring, parental empowerment and support services, and community outreach services</td>
<td>Group mentoring along with involvement in positive youth development curriculum, community service, parent workshops</td>
<td>Mentoring</td>
</tr>
<tr>
<td><strong>Comparison intervention</strong></td>
<td>No treatment</td>
<td>One control group received no treatment and the other control group received positive youth development curriculum, community service, and parent workshops without mentoring</td>
<td>No mentoring</td>
</tr>
<tr>
<td><strong>Outcomes used</strong></td>
<td>Vulnerability to narcotic addiction, drug use and criminal activity, family stability and functioning, school interest and performance, deviance of peer associates, personal characteristics and behavior</td>
<td>Measurements of reactions to situations involving drug use, overall frequency of substance abuse, knowledge about substance abuse</td>
<td>Measurements of parental relationship, Features of friendships, self-perception ratings and self-report of substance use</td>
</tr>
<tr>
<td><strong>Findings</strong></td>
<td>There was a significant difference found between the treatment group and control group in academic scores, but not in terms of problem behaviors or substance abuse.</td>
<td>In general, scores were &quot;best&quot; (i.e., most favorable from a prevention perspective) for students who received mentoring in addition to the school-based curriculum and community service assignments. The treatment group over scored significantly or marginally significantly better on attitudes toward school, the future, attitudes toward older people, and reactions to situations involving drug use.</td>
<td>Long term mentoring was found to significantly reduce the frequency of substance use, and led to increasingly positive perceptions of relationships with parents (which in turn was found to improve peer relationships and self-esteem).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study 7</th>
<th>Study 8</th>
<th>Study 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosemblum et al., 2005</td>
<td>Ahrens et al., 2008</td>
<td>Haddad et al., 2011</td>
</tr>
<tr>
<td><strong>Intervention investigated</strong></td>
<td>The impact of peer mentoring on substance abuse by youth with HIV affected parents</td>
<td>Mentoring for youth in foster care</td>
</tr>
<tr>
<td><strong>Comparison intervention</strong></td>
<td>No mentoring</td>
<td>No mentoring</td>
</tr>
<tr>
<td><strong>Outcomes used</strong></td>
<td>Substance use, substance use by friends, substance use risk</td>
<td>Drug use (did not include alcohol or marijuana) in the past year</td>
</tr>
<tr>
<td><strong>Findings</strong></td>
<td>Peer mentoring decreased risk of substance abuse when risk is calculated by a factor of personal and friend use (i.e. &quot;substance use risk&quot;). Peer mentoring was not found to have a</td>
<td>There were multiple outcomes that were positivity associated with mentoring for youth in foster care, but no significant relationship was found</td>
</tr>
<tr>
<td>Study 10</td>
<td>Study 11</td>
<td>Study 12</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Johnson et al., 2011</td>
<td>Black et al., 2010</td>
<td>Kaplan et al., 2009</td>
</tr>
<tr>
<td>Intervention investigated</td>
<td>Therapeutic mentoring for foster youth</td>
<td>Natural mentoring in the school system using an anti drug program</td>
</tr>
<tr>
<td>Comparison intervention</td>
<td>Amount of therapeutic mentoring received (none, little, significant)</td>
<td>Two groups received program mentoring in varying degrees of intensity and 1 control group received no treatment.</td>
</tr>
<tr>
<td>Outcomes used</td>
<td>Risk behaviors, Life domain functioning</td>
<td>Natural mentoring relationships, substance abuse, school attachment, and violence</td>
</tr>
<tr>
<td>Findings</td>
<td>Foster youth who received mentoring improved significantly in family and social functioning, and school behaviour and achievement. Youth who receive mentoring longer (up to 18 months) improved significantly over non-mentored youth in terms of demonstrating a reduction of the expression of stress symptoms associated with trauma.</td>
<td>Natural mentoring in schools was significantly correlated with decreased use of cigarettes, alcohol, marijuana, hard drugs; being drunk, binge drinking, violence perpetration, and violence victimization.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
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<td>Presence of a natural mentor in high school seniors</td>
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How mentoring in supports adolescents in their transition to adulthood is often taken for granted as many of us have had positive experiences with formal (i.e. Big Brothers Big Sisters) or natural (i.e. parents, teachers) mentors. However, as mentioned above, mentoring was not conclusively proven to be effective in preventing high risk behaviors, like substance abuse, in adolescents. While at first glance this might seem to refute the widely held assumption that mentoring helps guide youth through a difficult time, several alterations to the research question and methodology would improve outcomes and give a clearer picture of what mentoring entails, what it means to mentor and youth, and what type of mentoring is most effective.

First, the definition of mentoring and how mentoring specifically influenced adolescents was vague or not addressed in the research. The concept of ‘mentoring’ is inherently difficult to define as who qualifies as a mentor and how one mentors is a fluid process that varies between relationships. Formal mentoring programs such as Big Brothers Big Sisters were easier to qualify compared to natural mentoring because there are program specific durations, methods (i.e. ethnically congruent), and goals. Natural mentoring relationships were even harder to define let alone try to determine how they might be effective in reducing high risk behaviors. Future research would benefit from not only defining whether it is formal or natural mentoring, but also the underlying mechanisms used in mentoring and how they are interpreted and internalized by mentees. Both mentor and mentee perspectives and voices were lacking throughout the research analyzed.

Outcomes measurements could also be improved in future research. Much of the research used to measure outcomes on youth used self reported paper and pencil questionnaires as well as telephone follow up interviews. These research methods might lack validity because youth might be hesitant to admit on paper any high risk behaviors they might be involved in for fear of getting in trouble. Validity could also be compromised by researcher attitude or tone of voice while interviewing participants or administering the questionnaire so that participants might feel guilty about their habits or want to please the researcher. Outcomes were also undefined as the desired result of mentoring related to substance abuse wasn’t specified such as quitting substance abuse, reducing substance use, or not beginning to use drugs and alcohol in the first place. Longitudinal studies could also include other outcome measures such as interaction with the criminal justice system, ability to hold a full-time job, etc. to determine whether substance use hinders occupational performance in adulthood.

The biggest improvement that could be made to defining mentoring and what mentoring means to both mentor and youth would be to conduct of in-depth, longitudinal, and qualitative interviews with mentors and youth together and separately. While some of the research used qualitative research methodology, it was primarily done anecdotally using the researchers voice and perspective. Interviewing mentors and youth would give depth to the concept of mentoring, what it is and what makes it effective if anything. Insight would also be gained into how mentors affected the behavior of youth and how/why youth made changes in their lives based on what mentors did.

In the research analyzed, mentoring was not conclusively shown to be effective in reducing high risk behavior in adolescents. This in no way means that mentoring is not effective rather correcting and expanding current research methodology would go a long way in determining if and how it is effective. By using in-depth longitudinal interviewing and ethnography, what mentoring means to both mentor and youth, in short, what defines mentoring could be isolated and researched. The voices of the participants would be invaluable in understanding the transmission and reception processes of mentoring. Outcomes could also be measured via interview as well as survey to improve validity. Defining what mentoring is, along with better research methodology, would go a long way in creating a better research question that would enable clinicians to know if and how mentoring reduces high risk behaviors, including substance abuse, in adolescents.
REFERENCES


