



Universal, Family-based Substance Abuse Prevention for Youth

Key Messages

- Universal, family-based substance abuse prevention programs can be effective for females, whether designed for males and females or just females.
- Evidence that universal, family-based substance abuse prevention programs designed for males and females is effective for males is mixed.
- Gender is an important consideration for those developing, implementing and evaluating prevention programs.

Context

A comprehensive strategy for preventing youth substance abuse includes both universal approaches designed to apply to an entire population and targeted approaches designed for people at a higher risk for substance abuse (Canadian Centre on Substance Abuse, 2010; Weisz, Sandler, Durlak, & Anton, 2005). Many universal substance abuse prevention programs for youth focus on a specific age or stage of youth (e.g., early adolescence) to reflect developmental differences in the factors that influence substance abuse (Masten, Faden, Zucker, & Spear, 2008). Recently, some researchers have suggested that female youth might be underserved by universal substance abuse prevention programs (Kumpfer, Smith, & Summerhays, 2008), indicating the need for programs tailored specifically for males or females (i.e., gender-specific).

It is currently not known whether universal prevention programs are equally effective for both males and females. There is evidence that universal prevention programs are more effective for males than females (Kellam et al., 2008; Oesterle, Hawkins, Fagan, Abbott, & Catalano, 2010; Perry et al., 2003), but other studies have not found stronger effects for males (O'Donnell, Hawkins, Catalano, Abbott, & Day, 1995), highlighting the need for a review of the evidence.

In addition to universal and targeted approaches, prevention programs can be implemented across different settings, including community, school and family (Canadian Centre on Substance Abuse, 2010). Studies examining the factors that influence youth substance abuse suggest the effectiveness of a program might vary across these settings. Though each setting is important for males and females, there is some evidence that family factors such as parental attachment and parental monitoring might have a stronger impact on female substance abuse (Fothergill, & Ensminger, 2006; Kumpfer, Alvarado, & Whiteside, 2003; Sales, Samrano, Springer, & Turner, 2003), whereas individual and community factors might have a stronger impact on male substance abuse (Kellen et al., 2008; Kumpfer et al., 2003; Yin & Kaftarian, 1997). Considering the concern that females might be underserved by universal prevention programs and that family settings are especially important to females, this review focuses on the effectiveness of universal, family-based prevention programs for females and males.



The review sought to answer the following question: Are universal approaches to substance abuse prevention designed for families effective for both male and female youth?

The Issue

It is unclear whether universal prevention programs are equally effective for males and females. There is evidence that the effectiveness of a universal substance abuse prevention program might vary across community, school, and family settings. If there are gender differences in the effectiveness of prevention interventions, then females or males might be underserved by existing interventions and gender-specific approaches might be needed. This rapid review examines whether universal, family-based substance abuse prevention programs, including programs that target parents alone or parents and their children, are equally effective for males and females.

Approach

A search of published literature was conducted to identify randomized controlled trials (RCT) of universal, family-based substance abuse programs (Appendix A).¹ A total of 512 articles were initially assessed for relevance. Based on the screening of titles and abstracts, 70 full-text articles were reviewed for relevance.² Articles were included if they were published in English between 2009 and 2014 and conducted a gender-based analysis on the impact of a universal, family-based substance abuse prevention program among youth (ages 10–24).³ The researchers did not conduct a quality appraisal assessing the methodological strength of the individual studies included in this review.

Findings

Of the 70 articles included after title and abstract screening, 11 primary studies met the inclusion criteria. These 11 studies include both gender-specific, family-based interventions designed for females and mixed gender interventions designed for both males and females (see Appendix B for study details). There were no studies of family-based interventions specifically for males.

Family-based Prevention Targeting Females

All seven studies of programs designed for females demonstrated a preventative effect (Fang, Schinke, & Cole, 2010; Fang, & Schinke, 2013; O'Donnell, Myint-U, Duran, & Stueve, 2010; Schinke, Cole, & Fang, 2009a; Schinke, Fang, & Cole, 2009b; Schinke, Fang, & Cole, 2009c; Testa, Hoffman, Livingston, & Turrisi, 2010). Six of these studies assessed the effect of computer-delivered interventions for early adolescent females (about ages 10–13) and their parents. Five of these studies came from the same research group and two were of the same intervention at one-year (Fang et al., 2010) and two-year follow-ups (Fang et al., 2013). These programs showed positive impacts on family factors (e.g., closeness and communication), psychological benefits to female youth (e.g., higher self-efficacy), and reduced substance use in the short and medium term (up to two years; Fang et al., 2010; Fang et al., 2013; O'Donnell et al., 2010; Schinke et al., 2009a; Schinke et al., 2009b; Schinke et al., 2009c).

One intervention targeting females examined a parent-based handbook for first-year college students. This study found the intervention only reduced alcohol use among females who reported

¹ The population, intervention, comparison and outcome (PICO) factors used to formulate the research question are available upon request.

² The full list of articles is available upon request.

³ The screening questions are available upon request.



increased mother-daughter communication from the intervention. Females who did not have increased mother-daughter communication from the intervention did not show a reduction in alcohol use (Testa et al., 2010).

Family-based Prevention Targeting Females and Males

All four studies of interventions designed for males and females reported a significant preventative effect for females (Brody, Chen, Kogan, Murry, & Brown 2010; Doumas, Turrisi, Ray, Esp, & Curtis-Schaeffer, 2013; Ichiyama et al., 2009; Mason et al., 2009). Results for males were mixed with two studies reporting a significant preventative effect (Brody et al., 2010; Doumas et al., 2013), one study reporting no effect (Mason et al., 2009), and one reporting a harmful effect (Ichiyama et al., 2009).

Two of the four studies evaluated an in-person program designed to enhance family skills for families with children in late childhood or early adolescence. The other two studies evaluated the effectiveness of a parent handbook in reducing drinking among college students. Both studies of in-person programs showed reduced substance use among female participants (Brody et al., 2010; Mason et al., 2009). One study reported reduced substance use for males (Brody et al., 2010), whereas the other study did not find a significant effect (Mason et al., 2009). The programs for college students used a similar parent intervention handbook to enhance parental skills such as communication to reduce alcohol misuse among college freshmen (Doumas et al., 2013; Ichiyama et al., 2009). Both studies found significant effects for female college students (Doumas et al., 2013; Ichiyama et al., 2009). For male participants, one study found the intervention reduced both frequency and quantity of drinking (Doumas et al., 2013), whereas the other found a harmful effect with males in the intervention reporting significantly higher weekly alcohol consumption than males in the control group (Ichiyama et al., 2009).

Discussion

Based on the 11 studies reviewed, universal, family-based interventions can be an effective method to reduce substance abuse among female youth. All included studies of interventions designed for females and interventions designed for both males and females demonstrated reduced substance use among females.

Less research has been conducted with male participants and the review did not identify any programs specifically for male youth. Results for males from four studies of programs that included both males and females were mixed: two of four studies reported a preventative effect, one study reported no impact and one study reported a harmful effect.

The review identified two types of prevention programs: in-person programs for parents and their children in late childhood and early adolescence; and parent handbooks for parents with youth who are entering college. Differences across studies in the outcomes measured (e.g., lifetime use, frequency, quantity, substance use problems) and follow-up times (two months to several years) limit the ability to compare results across studies.

In-person programs for parents and their children were effective in preventing youth substance abuse among young females. Parent-based handbooks for students entering college also had a significant impact on short-term alcohol use for females; however, these results only had short-term follow-ups (from four to eight months) and are specific to alcohol use. The impact of these interventions in the longer-term and on other substances is not known.



This review highlights the importance of assessing gender differences in the effects of universal prevention programs. The review identified only 11 evaluations of family-based universal programs that examined gender differences. That the review found different results for females and males highlights the need for further research on this topic.

Although it was not always reported, most mixed gender interventions had greater participation from mothers than fathers (see Appendix B, Female and Male Participants). In addition, all but one intervention designed for females were designed for mothers and daughters. As a result, females in these programs were more likely to have a same-sex parent participate, whereas males were more likely to have an opposite-sex parent participate. Some research indicates distinct impacts of same-sex versus opposite-sex parents on alcohol use (Patoock-Peckham, Cheong, Balhorn, & Nagoshi, 2001; Patoock-Peckham & Morgan-Lopez, 2007). Unfortunately, no studies examined whether mother versus father participation or same versus opposite sex parents impacted the effectiveness of the intervention.

In fact, no research examined whether elements of the program (e.g., program targets, how the program was delivered) impacted the effectiveness of the program for males or females. Further research is needed to examine the effectiveness of universal, substance abuse prevention programs for males and females and whether aspects of the program content and delivery might impact the effectiveness for males and females. This information could be used to help inform future program development, particularly for young males.

This review focused on universal, family-based substance abuse prevention and should not be generalized to community or school settings. Similar research examining the effectiveness of universal, substance abuse prevention programs should be done in school and community settings to assess whether programs in these settings are effective for both females and males.

Conclusion

Based on the 11 studies reviewed, universal, family-based interventions can be effective for females, whether delivered with males or targeted to just females. However evidence of effectiveness is mixed for males.



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Appendix A: Search Strategy and Screening Questions

Research Question

Are universal approaches to substance abuse prevention designed for families effective for both male and female youth?

Database Searching

Search strategies were developed first for Ovid Medline based on a number of exemplar articles identified by the authors. Indexing for the concept of universal programs is inconsistent and is not represented in controlled vocabularies, so the researchers devised a two-pronged strategy. The first part of the strategy combined an additions set (comprised of keyword and controlled vocabulary) with the keyword universal. The second part of the strategy combined this same additions set with keywords and controlled vocabulary describing aspects of universal programs; these related terms focused on family relationships, parents and at-home treatment concepts. Both of these strategies were restricted by age headings and school headings (school being a term applicable to secondary and elementary educational settings) in the Medline database. ERIC and Web of Science were searched using short keyword strategies.⁴

Medline searches were limited by using a validated randomized controlled trial filter from the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins, & Green, S., 2011).

Searches were conducted in December 2013 in Ovid Medline, In-Process & Other Non-Indexed Citations and Ovid Medline, 1946 to Present; ERIC (Education Resources Information Center) database via the ProQuest interface; and Web of Science Core Collection (<http://thomsonreuters.com/web-of-science-core-collection/>).

Title and Abstract Screening

English language = yes/unclear

Year of publication = 2009–2014

Age of population = 10–24

Purpose/aim to examine a family-based skills or relationship intervention? = yes/unclear

Does the study measure substance abuse? = yes/unclear

Is the study of a universal prevention program? = yes/unclear

Full Text Screening

Age of population=10–24

Purpose/aim to examine a family-based skills or relationship intervention? = yes

Does the study measure substance abuse? = yes

Is the study of a universal prevention program = yes

Is the control group consistent with PICO? = yes

Does the study report results by gender or assess gender differences? = yes

⁴ The full search strategy for each database is available upon request.



Appendix B: Characteristics of Primary Studies

Female Participants Only

Study	Purpose	Method	Participants	Substance Use Outcomes	Other Relevant Outcomes
Fang, Schinke, & Cole (2010)	To evaluate the effectiveness of a family-based intervention delivered online for mothers & daughters aimed at reducing substance use among Asian-American females.	Randomized controlled trial (RCT)	Asian-American females aged 10-14 & their mothers recruited from the community n=108	At one-year follow up, females in the intervention reported fewer instances of alcohol use, marijuana use & prescription drug use in the past 30 days.	Females in the intervention reported: <ul style="list-style-type: none"> • Higher levels of mother-daughter closeness • Enhanced communication • Maternal monitoring • Experiencing more rules against substance use • Less depressed mood • Higher self-efficacy • Improved refusal skills • Lower intention to use substances in the future
Fang, & Schinke (2013)	To evaluate the longer term effectiveness of a family-based intervention delivered online for mothers & daughters aimed at reducing substance use among Asian-American females.	RCT	Asian-American females aged 10-14 & their mothers recruited from the community n=93	At two-year follow up, females in the intervention reported fewer instances of alcohol use, marijuana use & prescription drug use in the past 30 days.	Females in the intervention reported: <ul style="list-style-type: none"> • Higher levels of mother-daughter closeness • Enhanced communication • Maternal monitoring • Experiencing more rules against substance use • Higher self-efficacy • Improved refusal skills • Lower intention to use substances in the future
O'Donnell, Myint-U, Duran, & Stueve (2010)	To evaluate the effectiveness of a gender-specific, computer-mediated substance abuse prevention intervention.	RCT	6 th grade students & their parents (89% mothers; 6% fathers; 5% other caregiver) n=268	Girls in the intervention were less likely to use alcohol or to have been drunk at follow up (adjusted odds ratio = 0.38; confidence interval 0.15-0.97).	Girls in the intervention reported fewer heterosexual sexual acts
Schinke, Cole, & Fang (2009a)	To evaluate the effectiveness of a gender-specific, computer-mediated substance abuse prevention intervention to reduce underage drinking in females.	RCT	Females ages 10–13 & their mothers n=202	Girls in the intervention were significantly less likely to consume alcohol in the past week & month compared to girls in the control condition at two-month follow up. The effect size of the intervention was very small ($\eta^2=.02$).	Females in the intervention reported: <ul style="list-style-type: none"> • Higher levels of mother-daughter communication • More maternal monitoring • Experiencing more rules against substance use from parents • Improved conflict management skills • Less favourable normative beliefs about alcohol • Higher self-efficacy • Improved refusal skills • Lower intention to use alcohol in the future



Study	Purpose	Method	Participants	Substance Use Outcomes	Other Relevant Outcomes
Schinke, Fang, & Cole (2009b)	To evaluate the effectiveness of a gender-specific, computer-mediated substance abuse prevention intervention.	RCT	Females ages 11-13 & their mothers n=916	Females in the intervention had fewer occasions of alcohol use, marijuana use, prescription drug misuse & inhalant use over the past 30 days at two-year follow up.	Females in the intervention reported: <ul style="list-style-type: none"> • Higher levels of mother-daughter closeness • Enhanced communication • Increased maternal monitoring • Increased coping skills, • Reduced normative beliefs about substance use, • Enhanced drug refusal skills • Experiencing more rules against substance use • Improved refusal skills • Lower intention to use substances in the future
Schinke, Fang, & Cole (2009c)	To evaluate the effectiveness of a gender-specific, computer-mediated substance abuse prevention intervention.	RCT	Females ages 11-13 & their mothers n=591	Females in the intervention were less likely to use alcohol, marijuana, & prescription drugs in the last 30 days compared to those in the control condition at one year follow up.	Females in the intervention reported: <ul style="list-style-type: none"> • Higher levels of mother-daughter closeness • Enhanced communication • Increased maternal monitoring • Increased coping skills • Improved body image • Less depressed mood • Reduced normative beliefs about substance use • Enhanced drug refusal skills • Experiencing more rules against substance use from their parents • Improved refusal skills • Lower intention to use substances in the future
Testa, Hoffman, Linginston, & Turrisi (2010)	To evaluate the effectiveness of a Parent Based Intervention (PBI) handbook to reduce the incidence of alcohol use & alcohol-involved sexual victimization among first-year college students.	RCT	Female college freshmen & their mothers n=978	No differences at 4- or 8-month follow ups between intervention & control groups in frequency of heavy episodic drinking or number of weekend drinks. An indirect effect was found where the PBI increased general communication & general communication resulted in lower heavy episodic drinking. The effect of communication on number of weekend drinks was not reported.	Females in the intervention reported: <ul style="list-style-type: none"> • Increase in general communication • Lower alcohol involved sexual victimization incidence (8% in intervention versus 12% control).



Female and Male Participants

Study	Purpose	Method	Participants	Substance Use Outcomes	Other Relevant Outcomes
Brody, Chen, Kogan, Murry, & Brown (2010)	To evaluate the long-term effectiveness of the Strong African American Families program on youth alcohol use.	RCT	African American youth age 11 (proportion of male & female participation not specified) & their primary caregivers (mother / father participation not specified). n=667	Gender differences in program effects were not found. Youth in the control group drank about twice as often (1.41 times) as youth in the intervention (.68 times) at the 65 month follow up.	No other outcomes were measured.
Doumas, Turrisi, Ray, Esp, & Curtis-Schaeffer (2013)	To evaluate the effectiveness of a PBI & a PBI with booster session (PBI-B) in reducing drinking among first year college students.	RCT	College freshmen (69.5% female) & parents of college freshmen (mother / father participation not specified) n=443	Gender differences in program effects were not found. No significant differences between PBI & controls at 4-month follow up. The PBI-B resulted in a more than 65% reduction in drinking frequency compared to controls & about 60% reduction in peak drinking quantity. The differences between PBI-B & control for binge drinking was not significant.	No other outcomes were measured.
Ichiyama, Fairlie, Wood, Turrisi, Francis, Ray, & Stanger (2009)	To evaluate the effectiveness of a PBI handbook in reducing alcohol use among first-year college students.	RCT	College freshmen (proportion of male & female participation not specified) & their parents (76.5% mothers in the PBI & 77.1% in the control group) n=724	At 8-month follow up, the intervention was effective in reducing the number of drinks consumed per week for women, but men in the intervention consumed more drinks per week than men in the control. The intervention had no significant impact on reducing heavy episodic drinking or alcohol-related problems for men or women.	No other outcomes were measured.
Mason, Kosterman, Haggerty, Hawkins, Redmond, Spoth, Shin (2009)	To evaluate the long-term effectiveness of a family-focused substance use prevention intervention.	RCT	6 th grade students (52% female) & their parents (mother / father participation not specified) n=429	Follow-up at age 22 found women in the intervention group had significantly lower rates of alcohol use disorders compared to controls. There were no significant effects for men.	Girls in the intervention reported higher prosocial skills & bonds. No additional outcomes for males.

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