Published in final edited form as:

J Community Psychol. 2019 March ; 47(2): 195–209. doi:10.1002/jcop.21723.

THE INITIAL ASSESSMENT OF A COMMUNITY-BASED INTERVENTION WITH MEXICAN-HERITAGE PARENTS IN BOOSTING THE EFFECTS OF A SUBSTANCE USE PREVENTION INTERVENTION WITH YOUTH

Flavio F. Marsiglia, Stephanie L. Ayers, Danielle Robbins, Julie Nagoshi

Arizona State University

Adrienne Baldwin-White,

University of Georgia

Felipe González Castro

Arizona State University

Abstract

Drawing from an ecodevelopmental framework, this article examines if adding a parenting component, Families Preparing the New Generation (Familias Preparando la Nueva Generación), to an efficacious classroom-based drug abuse prevention intervention, keepin'it REAL, will boost the effects of the youth intervention in preventing substance use for middle school Mexican-heritage students. Youth attending schools in a large urban area in the Southwestern U.S. (N = 462) were randomly assigned to 1 of 3 conditions: parent and youth, youth only, or control. Using ordinary least squares regression, changes in youth substance use outcomes were examined. Results indicate that youth whose parents also participated in prevention programming exhibited significantly lower use of alcohol, cigarettes, marijuana, and inhalants compared to youth who received only keepin'it REAL. These initial effects indicate that involving parents in prevention efforts can strengthen the overall efficacy of a youth prevention intervention. This article discusses specific implications for the design of prevention interventions, policy, and future research.

Prevalence rates for use of alcohol, cigarettes, and illicit drugs are now highest among Latinos in the 8th and 10th grades compared to their non-Hispanic White and African American peers (Prado, Szapocznik, Maldonado-Molina, Schwartz, & Pantin, 2008). Relative to their peers, Latino 8th graders have reported the highest lifetime rates of marijuana usage (13%) and binge drinking (12%); however, these numbers may be underestimates of actual rates of substance use, as the reported rates do not include Latino youth who have dropped out of school (Johnston, O'Malley, Bachman, & Schulenberg, 2008). Although these rates are clearly elevated, the factors that contribute to these rates among Latino youth remain unclear (Castro & Nieri, 2009).

To address these epidemiological trends, intervention research has started to examine the risk and protective factors that contribute to the higher levels of substance use in many Latino communities. In particular, ecological factors and processes (e.g., family cohesion, parental involvement, and peers' perceptions of substance use) have been shown to be associated with rates of substance use among Latino youth (Prado et al., 2009). Less parental monitoring, lower levels of parent–youth communication, and higher levels of family conflict are also linked to greater substance use among Latino youth (Wagner et al., 2010), while differential acculturation between parent and youth may exacerbate adolescent problem behaviors, including alcohol, cigarettes, and marijuana use (Dinh, Roosa, Tein, & Lopez, 2002; Tseng & Fuligni, 2000; Castro, Stein, & Bentler, 2009; Voisine, Parsai, Marsiglia, Kulis, & Nieri, 2008; Portes & Rumbaut, 2005).

From an ecodevelopmental perspective, strengthening families has been identified as an important approach in developing prevention interventions that may help prevent, reduce, or cease substance use among youth (Tharp & Noonan, 2011). From this perspective, this article presents the initial results on youth substance use of adding a parenting component, Families Preparing the New Generation (FPNG; Familias Preparando la Nueva Generación), to an existing and already proven efficacious classroom-based drug abuse prevention intervention, keepin' it REAL (kiR; Marsiglia & Hecht, 2005).

Ecodevelopmental Theory

Ecodevelopmental theory (Coatsworth, Pantin, & Szapocznik, 2002; Pantin, Schwartz, Sullivan, Pardo, & Szapocznik, 2004; Szapocznik & Coatsworth, 1999) posits that risk and protective factors for adolescent problem behavior can be conceptualized by the patterns of relationships between individuals and between multiple, interacting social systems. Interventions can be successful only if they intervene on multiple levels of social interaction (Coatsworth et al., 2002). Ecodevelopmental theory focuses on the interaction between four systems: (a) macrosystems, which are the broad social and philosophical contexts of a culture (e.g., the acculturation gap between children and parents); (b) exosystems, which are systems that can influence youth indirectly (e.g., limited social support and high stress environments for parents) (c) mesosystems, which are the interactions between important members of the microsystems systems (e.g., parental supervision of peers and parental involvement in school); and (d) microsystems, which are immediate systems and settings in which the adolescent directly interacts (e.g., peers, parents, and schools; Martinez & Eddy, 2005; Ortega, Huang, & Prado, 2012).

The family is considered an important microsystem to consider when developing interventions to prevent adolescent substance use, especially among the Latino community (Lopez et al., 2009). Family factors are the strongest predictors of positive or negative development in adolescents; the family microsystem shapes adolescent development toward either health or dysfunction (Pantin, Schwartz et al., 2003). Parental practices such as monitoring and parent–child communication have a direct effect on substance use among adolescents, but they also mediate the potential negative influences of peers (Lopez et al., 2009).

Another advantage of focusing on microsystem factors is that unlike certain macrosystem factors, such as culture, microsystem factors are modifiable and can be positively changed through effective interventions (Prado et al., 2013). Because the family has a very salient influence on Latino adolescent well-being (Prado et al., 2012), it is imperative that prevention programs confront the familial issues that arise in families, such as learning the cultural norms of the host society, acculturative differences, language barriers, and economic issues, as well as integrating family traditions and beliefs (Coatsworth et al., 2002). The diverse risk and protective factors present in Latino communities necessitate a multifaceted approach to preventing substance use, including the inclusion of family risk and protective factors (Pantin, Coatsworth et al., 2003).

kiR

kiR is a culturally- and evidence-based substance use prevention program for youth that is designed to (a) increase drug resistance skills, (b) promote antisubstance use norms and attitudes, and (c) develop effective decision-making and communication skills for resisting drugs and alcohol (Marsiglia & Hecht, 2005). Delivered in regular school classrooms over 10 weeks by teachers, the curriculum teaches drug resistance strategies through the acronym REAL: Refuse, Explain, Avoid, and Leave (see Gosin, Marsiglia, & Hecht, 2003). In addition, kiR aims to build personal and cultural strengths as well as communication and life skills. The curriculum is also designed to provide youth opportunities to participate in culturally relevant activities that allow them to discuss how and why their cultural values are important to them (Marsiglia & Hecht, 2005).

kiR was initially tested in a randomized control trial with 35 schools and 6035 youth. Findings showed that youth who received kiR had lowered alcohol, tobacco, and marijuana use coupled with an increase in antidrug attitudes and personal norms compared to the control group (Hecht et al., 2003; Kulis, Marsiglia, & Huddle, 2005). These findings were particularly strong for Latino youth (Marsiglia, Kulis, Wagstaff, Elek, & Dran, 2005). Based on these findings, kiR is now recognized as a National Model Program by the Substance Abuse and Mental Health Services Administration (SAMHSA; Schinke, Brounstein, & Gardner, 2002).

FPNG

While kiR demonstrated efficacy for youth, the Arizona-based developers, in partnership with community stakeholders and key informants (i.e., parents, students, teachers, school principals, and superintendents), realized that more could be done to increase the effect size and duration of the effects produced by kiR. Using community-based participatory research (Krueter, Kegler, Joseph, Redwood, & Hooker, 2012), FPNG was developed by incorporating the voice of the local community (see Parsai, Castro, Marsiglia, Harthun, & Valdez, 2011). The overall goals of the FPNG curriculum are to (a) empower parents to assist their youth in resisting drugs and alcohol using the REAL strategies, (b) build and strengthen family functioning, which promotes prosocial youth behavior, and (c) increase family's problem-solving and communication skills.

The FPNG curriculum includes the following eight workshops:

- You Are Not Alone: Parents identify people who may provide support to both the family and the adolescent.
- Introduction to kiR: Parents practice the REAL strategies and practice the A-B-C-D Problem-Solving Method.
- Knowing Your Child's World: Parents learn about adolescent development and identify how diversity and the social environment can affect adolescent development.
- Communicating with Your Child: Parents develop effective and respectful ways of communicating with their adolescent.
- Giving and Receiving Support: Parents identify why and how a supportive, positive, and warm relationship can keep adolescents away from problem behaviors.
- Managing Your Child's Behavior Effectively: Parents learn how effective behavior management, like parental monitoring, can protect adolescents from problem behaviors.
- Talking with Teens about Risky Behaviors: Parents describe consequences of substance use and risky sexual behavior and identify how to prepare for sensitive conversations with their adolescents.
- Putting It All Together: Parents review the REAL strategies, social networks, and key elements from previous workshops and describe strategies they may use to help their adolescents navigate this time of their lives.

In delivering the curriculum during the fall semester of the school year, parents met once a week over an 8-week period, typically in the early evenings or on the weekend. The groups met at the school their youth attended, with child care provided free of charge. Although trained bilingual facilitators delivered the curriculum, all groups occurred in Spanish. On average, groups had 5 to 10 parents per group, with most parents attending six out of the eight lessons (see Williams, Ayers, Baldwin, & Marsiglia, 2016).

The effect of FPNG on parenting behaviors has been noted in the immediate effects of strengthening open communication (Williams, Ayers, Garvey, Marsiglia, & Castro, 2012) and improving positive parenting practices (Marsiglia, Williams, Ayers, & Booth, 2014), as well as in reducing parents' heavy drinking in the long term (Williams, Marsiglia, Baldwin, & Ayers, 2015). There is also anecdotal evidence from the schools that parents continued their involvement at school after the sessions ended.

Purpose of This Study

The purpose of this study is to assess youth substance use when adding a parenting curriculum (FPNG) to a youth prevention intervention (kiR). It is hypothesized that after program implementation, and relative to the youth who received only kiR, youth who

received kiR and whose parents received FPNG will exhibit significantly lower levels of alcohol, cigarette, marijuana, and inhalant use.

METHODS

The methodology for this 4-year long study of two cohorts over 2 years is described in detail below.

School Enrollment and Training

Eligible school districts were those that had a large percentage (> 70%) of Latino students during the 2007–2008 school year. Nine schools agreed to participate in this study. Teachers assigned to deliver kiR received training regarding the culturally sensitive delivery of kiR (see, Harthun, Dustman, Reeves, Hecht, & Marsiglia, 2008). Principals also agreed to allow trained research facilitators to use the school's facilities to deliver the FPNG curriculum to the parents. These facilitators, employed by the research center, also received training regarding the culturally sensitive delivery of FPNG.

Randomization

The nine schools were stratified into three blocks in accordance with the percentage of Latino students in each school. The schools with the three highest percentages of Latino students were entered into Block 1, and the schools having the three lowest percentages of Latino students were entered into Block 3. This stratification created three blocks with three schools each. Within each block, the school having the lowest random numerical value was assigned to the parent and youth condition, the middle value was assigned to the youth only condition, and the highest value was assigned to the control condition.

Participant Enrollment

The eligible sample was drawn from two cohorts. Cohort 1 included youth who were in 7th grade during the 2009–2010 school years, and Cohort 2 included youth who were in 7th grade during the 2010–2011 school year. Regardless of the cohort, the procedures remain the same. All 7th-grade youth and their parent(s) in the participating schools were eligible to participate in the study. Trained study personnel initiated recruitment procedures at each school a few weeks before students received the preintervention questionnaires. Flyers, letters, and informed parental consents were sent home with every 7th-grade student. The parental consent asked whether or not (a) the parent wished to participate in the study and (b) if they consented to have their youth participate in the study. The parental consent forms emphasized the voluntary and confidential nature of participation and the timing of both youth and parent surveys and informed parents of the implementation of FPNG and kiR, where applicable.

Trained study personnel initiated procedures to obtain informed parental consent at each school. Parents could choose one of three options: (a) consent both parent and youth, (b) consent only youth, or (c) consent neither parent nor youth. It should be noted that both parent and youth consent referred to data collection only, not administration of an intervention. The overall consent rate for the study was 77%, with a 76% consent rate for

youth. Parents who chose to participate received phone calls with the trained study personnel regarding more details of participating in the study.

Survey Administration

In compliance to institutional review board requirements, consented youth had to first agree to participate through a written assent. In the fall (September to November) of the school year, a preintervention survey (Wave 1) was administered to consented youth. After completing the interventions, FPNG and kiR, youth completed a short-term survey (Wave 2) in the spring (March to May) of the same school year. All surveys were available in English or Spanish and were translated following the procedures described by Rogler (1989). Of the youth, 3% completed the Wave 1 surveys in Spanish. The youth surveys elicited responses on sociodemographic characteristics and self-reported substance use behaviors, as well as substance use norms, expectancies, resistance skills, and intentions. At the completion of each survey, youth received a small incentive (e.g., a yo-yo).

Sample Sizes and Missing Data

The sample size for this study is 462 7th-grade youth, whose parents also participated in the study. The attrition rate between Wave 1 and Wave 2 was 8.5%. Little's missing completely at random (MCAR) test (1988) using SPSS (version 18) was performed with all of the variables used in the analyses. The MCAR test resulted in a chi-square = 392.86 (degree of freedom [df] = 395; $p = .52$). The nonsignificant results indicate that the data are missing at random (e.g., no significant pattern exists to the missing data).

Measures

Substance use at Wave 2.—Youth reports of past month's prevalence of substance use, in both amount of use and frequency of use at Wave 2 were examined. Substance use is self-reported by the youth, and for the remainder of the article, the mention of "substance use" will coincide with self-reported substance use. It should be noted there is sufficient evidence of the validity of adolescents' self-reported substance use behaviors, which is documented by the correspondence found between self-reported use and use detected by urine and other biomarkers (Dillon, Turner, Robbins, & Szapocznik, 2005). Substance use was assessed separately for alcohol, cigarettes, marijuana, and inhalants using developmentally appropriate questions for this age group (Kandel & Wu, 1995). Substance use at Wave 2 includes six dependent variables: alcohol frequency, alcohol amount, cigarette frequency, cigarette amount, marijuana frequency, marijuana amount, and inhalant frequency.

Treatment group.—This study design comprised three conditions: (a) parent and youth (PY), in which parents received FPNG and their youth received kiR; (b) youth only (YO), in which parents did not receive FPNG and youth received kiR; and (c) control (C), in which neither parents nor youth received any curriculum. Because of the hypothesis, the YO condition serves as the reference group.

Interactions between substance use at Wave 1 and treatment group.—To control for the effect that substance use at Wave 1 may moderate the effects of the intervention, an interaction term was created. The control variables for this study, all

measured at Wave 1, include gender, usual grades in school, Latino ethnicity, and free lunch status. These controls were chosen because of their known effects on drug use within adolescent populations (Toray, Coughlin, Vuchinich, & Partricielli, 1991; Kloos, Weller, Chan, & Weller, 2009; Schinke, Moncher, Palreja, Zayas, & Schilling, 1988; Kulis et al., 2003; King, Meehan, Trim, & Chassin, 2006; Henry, 2010; Goodman & Huang, 2002; Friestad, Pirkis, Beihl, & Irwin, 2003).

Statistical Analyses

The principal aim of the current study is to examine how changes in substance use over time varied across conditions, specifically whether students exposed to the PY intervention reported changes in substance use that differed significantly from the YO group. Because all substance use measures were on a 7-point Likert scale, ordinary least squares regression was used to analyze the dependent variables.

FINDINGS

Descriptive statistics for the sample are presented in Table 1. At Wave 1, approximately one quarter (23.2%) of youth reported using at least some amount of alcohol (mean [M] = 1.41; standard deviation [SD] = .96), which increased to 30% (M = 1.63; SD = 1.24). A similar pattern is seen with alcohol use frequency, with an increase from 16.9% (M = 1.27; SD = 0.73) to 34.3% (M = 1.64; SD = 1.17). Cigarette use is dramatically lower than alcohol use, with less than 10% reporting frequency and amount of cigarette use at both Wave 1 and Wave 2. Marijuana and inhalant use had an increase from Wave 1 to Wave 2; for example, marijuana use frequency increased from 5.7% (M = 1.10; SD = 0.51) to 10.6% (M = 1.29; SD = 1.05). Similarly, inhalant use frequency increased from 7.9% (M = 1.19; SD = 0.80) to 12.0% (M = 1.26; SD = 0.84).

Results for the effects of the intervention on substance use outcomes are presented in Table 2. In Model 1, the main effects for treatment group were not significant, but the interaction between PY and amount of alcohol at Wave 1 are significant (b = $-.32$, p < .10). Figure 1a presents the graphs for the interaction. Regardless of treatment group, youth who were not using alcohol at Wave 1 continued to be nonusers at Wave 2; however, for the heaviest users of alcohol at Wave 1 (more than 30 drinks), the PY condition had a significant reduction in the amount of alcohol used in the past 30 days compared to the YO condition.

Model 2 presents the results for alcohol frequency. The main effect for the C condition was negatively associated with alcohol use frequency at Wave 2, but the interaction term indicates a positive increase in the slope for the C condition compared to the YO condition (b = .44, p < .10). On the other hand, the PY condition had a significantly negative increase in the slope compared to the YO condition, when accounting for alcohol frequency at Wave 1 (b = $-.51$, p < .05). Figure 1b presents the graphs for the interaction. Again, youth who were not using alcohol at Wave 1 continued to be nonusers at Wave 2. However, compared to the YO condition, the PY condition had a dramatically lowered alcohol use frequency at Wave 2.

The results for the amount of cigarettes smoked are presented in Model 3. The main effects were significant for the PY ($b = .83, p < .10$) and C ($b = -.72, p < .001$) conditions compared to the YO condition. The interaction terms were also significant for both groups (PY: $b = -.85, p < .10$; C: $b = .64, p < .001$). Figure 1c presents the graphs for the interactions. Like alcohol amount and alcohol frequency, youth who were not using cigarettes at Wave 1 continued to be nonusers at Wave 2. However, for the PY condition, cigarette use at Wave 2 all but stopped, regardless of the amount of cigarettes youth were smoking at Wave 1. Compared to the YO condition, users of the C condition continued to use a high amount of cigarettes at Wave 2, paralleling their cigarette use at Wave 1. Cigarette frequency, Model 4, was not significantly associated with the PY condition compared to youth in the YO condition, even when the interaction term was included; thus, these results are not graphed.

Model 5 presents the results for amount of marijuana used. The main effect for the PY condition was positive ($b = .46, p < .10$), but the interaction effect was negative ($b = -.59, p < .01$); however, the C condition was not significantly different than the YO condition, even when including the interaction term. Figure 1d presents the graph for the interactions. The amount of marijuana use continued to be high from Wave 1 to Wave 2 for users of the YO and C conditions. However, for the PY condition, the use of marijuana all but stopped. The results for marijuana frequency are reported in Model 6. Although significant differences existed between the C and YO groups in both the main effects ($b = .65, p < .001$) and the interaction term ($b = .62, p < .001$), no significant differences were found between the PY and Y conditions, thus these results are not graphed.

Last, Model 7 presents the results for frequency of inhalants used. Although the main effect for the PY condition was positive ($b = .44, p < .01$), the interaction effect was negative ($b = -.41, p < .01$). Figure 1e presents the graph for the interaction. For the PY condition, inhalant frequency all but ceased, even for those youth who reported using inhalants 40 or more times in the past 30 days at Wave 1.

DISCUSSION

The results of the immediate effects of adding the parenting component, FPNG, to the already efficacious classroom-based drug abuse prevention intervention, kiR, are promising. In general, FPNG appears to have boosted the effects of kiR with Mexican American and other middle school students. These findings are particularly salient for those adolescents already using substances at the beginning of 7th grade. Among substance users at Wave 1, youth who received kiR in the classroom and whose parents also received FPNG used alcohol, cigarettes, marijuana, and inhalants significantly less than youth who received only kiR. These findings confirm the overall hypothesis for the study: The effects of kiR were strengthened when parents received FPNG, with the caveat, however, that youth were already using substances at the beginning of 7th grade. It should be noted that if youth were not using substances at the beginning of 7th grade, they remained nonusers at the end of 7th grade, regardless if they received FPNG, kiR, or were in the control group.

These FPNG immediate results are consistent with the ecodevelopmental theory (Coatsworth et al., 2002; Pantin, Schwartz, Sullivan, Pardo, & Szapocznik, 2004;

Szapocznik & Coatsworth, 1999), which guided the study's hypothesis. Although the peer and school microsystem are importance influences on youth behaviors, the ecodevelopmental theory posits that the family microsystem has the greatest protective influence on adolescent problem behaviors (Coatsworth et al., 2002; Pantin et al., 2004; Szapocznik & Coatsworth, 1999). "Factors such as family cohesion, conflict and communication are some of the most powerful predictors of both positive and negative development in childhood in adolescence. A cohesive, harmonious, and well-communicating family is likely to produce competent and agreeable youngsters" (Schwartz, Pantin, Szapocznik, & Coatsworth, 2003, p. 198). These findings, that youth whose parents participated in a parenting program had decreased substance use, provide further evidence to this theoretical premise. This is also echoed in the increases already seen in parental communication (Williams, Ayers, et al., 2012) and positive parenting practices (Marsiglia, Williams, et al., 2014) for parents who received FPNG. Future research will examine exactly how family functioning, such as positive parenting practices and parent-child communication, are strengthened by FPNG, and in turn, how youth substance use outcomes and other risky behaviors are thwarted as a result of the parent mediation.

Although long-term causal conclusions cannot yet be made, it appears that adding FPNG to kiR, which is emerging as a packaged multilevel curriculum, can positively affect familial and parent-child influences that can protect against youth substance use. Examining the short-term effects of these combined curricula is important, particularly for practitioners, to document the entire process of behavior change in youth.

Limitations and Future Directions

These immediate results have some sampling and other design limitations that need to be noted. First, because the youth intervention is a universal prevention program targeting all children in a classroom regardless of their substance abuse history, the study did not assess parent's knowledge of youth substance use prior to joining the intervention. Although awareness of youth substance use may have been a factor for parental participation, independent *t* tests of youth in the PY condition indicate no significant differences in alcohol or cigarette use at Wave 1 between youth whose parents participated and youth whose parents did not participate. This suggests that prior knowledge of substance use may not be the primary reason for participation in the intervention.

Second, the lack of representation of English-dominant Mexican American parents limits the generalizability of the findings. The vast majority of the participants were monolingual in Spanish or bilingual with a preference to communicating in Spanish. The findings cannot be generalized to more acculturated parents. In future studies, sample designs should include school districts located outside the central city where the majority of recent immigrant families reside to recruit a more diverse sample.

In addition, for this study, the analyses are limited to only self-reported substance use outcomes from Wave 1 to Wave 2. While short-term conclusions about the effectiveness of FPNG can be drawn, any long-term causal conclusions cannot be made at this time. Future studies will include all three time points and examine how the intervention is mediated through parent outcomes (Wave 2) to affect youth outcomes (Wave 3).

Another possible limitation is that parents were advised of their treatment condition before informed consent was obtained, possibly resulting in differing consent rates across conditions. Parents in the PY condition had a lower consent rate (58%) compared to parents in the YO condition (64%). However, it should be noted that parents in the C condition had virtually the same consent rate (59%) as parents in the PY condition. This may be due to the level of interest of parents willing to participate in a youth-only intervention, compared to participating in a parent-based intervention or receiving nothing, and may affect the results—only motivated parents attended the parenting workshops.

It should be noted that once baseline data were collected, an unconditional model in Mplus was conducted to examine the intraclass correlations (ICCs) between schools. The unconditional model indicated nonsignificant ICCs between schools. Additionally, analyses of variance and *t* tests were performed on youth substance use at baseline. Of the seven outcomes tested, the only significant difference was in 30-day cigarette use between youth in the YO condition and youth in the C condition.

Conclusion

Despite the noted limitations, the immediate results of the study have important policy, practice, and research implications. Engaging families in substance use prevention seems to be a very good investment as it can strongly boost the effects of youth-focused substance use interventions. By involving both parents and youth in the creation and implementation of this prevention curriculum, FPNG capitalizes on parents' readiness and willingness to engage in their children's life and to help improve their ability to resist substance use. These short-term effects support community-based research that capitalizes on schools, communities, and families partnering with researchers to design and test the appropriate interventions.

These findings also highlight the importance of substance use prevention interventions to be both culturally specific and family-centered to strengthen the resistance strategies of minority youth. On a broader level, the opportunities for dissemination of evidence-based interventions for minority youth and families are many. FPNG and kiR can be implemented as one manualized intervention by trained community health workers, whether or not they possess advanced academic degrees. Participating parents, as our own experience demonstrates, can become trainers for other parents, increasing the capacity of communities to disseminate and sustain this type of evidence-based and culturally appropriate interventions.

Acknowledgments

This research was supported by funding from the National Institutes of Health/National Institute on Minority Health and Health Disparities (NIMHD/NIH), award P20 MD002316 (F. Marsiglia, P.I.). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIMHD or the NIH.

REFERENCES

- Castro FG, & Nieri TA (2009). Cultural factors in drug use etiology: Concepts, methods, and recent findings In Scheier LM (Ed.), *Handbook of drug use etiology: Theory, methods, and empirical findings* (pp. 305–324). Washington, DC: American Psychological Association.

- Castro FG, Stein JA, & Bentler PM (2009). Ethnic pride, traditional family values, and acculturation in early cigarette and alcohol use among Latino adolescents. *Journal of Primary Prevention*, 30, 265–292. [PubMed: 19415497]
- Coatsworth D, Pantin H, & Szapocznik J (2002). Familias Unidas: A family-centered ecodevelopmental intervention to reduce risk for problem behavior among Hispanic adolescents. *Clinical Child and Family Psychology Review*, 5, 113–132. [PubMed: 12093012]
- Dillon FR, Turner CW, Robbins MS, & Szapocznik J (2005). Concordance among biological, interview, and self-report measures of drug use among African American and Hispanic adolescents referred for drug abuse treatment. *Psychology of Addictive Behaviors*, 19(4), 404. [PubMed: 16366812]
- Dinh KT, Roosa MW, Tein J-Y, & Lopez VA (2002). The relationship between acculturation and problem behavior proneness in a Hispanic youth sample: A longitudinal mediation model. *Journal of Abnormal Child Psychology*, 30, 295–309. [PubMed: 12041714]
- Friestad C, Pirkis J, Beihl M, & Irwin C (2003). Socioeconomic patterning of smoking, sedentary lifestyle, and overweight status among adolescents in Norway and the United States. *Journal of Adolescent Health*, 22, 275–278.
- Goodman E, & Huang B (2002). Socioeconomic status, depressive symptoms and adolescent drug abuse. *Archives of Pediatric and Adolescent Medicine*, 156, 448–453.
- Gosin M, Marsiglia FF, & Hecht ML (2003). Keepin' it REAL: A drug resistance curriculum tailored to the strengths and needs of pre-adolescents of the Southwest. *Journal of Drug Education*, 33, 119–142. [PubMed: 12929705]
- Harthun ML, Dustman PA, Reeves LJ, Hecht ML, & Marsiglia FF (2008). Culture in the classroom: Developing teacher proficiency in delivering a culturally-grounded prevention curriculum. *Journal of Primary Prevention*, 43, 435–454. 10.1007/s10935-008-0150-z
- Hecht ML, Marsiglia FF, Elek E, Wagstaff DA, Kulis S, Dustman P, & Miller-Day M (2003). Culturally grounded substance use prevention: An evaluation of the keepin' it REAL curriculum. *Prevention Science*, 4, 233–248. [PubMed: 14598996]
- Henry KL (2010). Academic achievement and adolescent drug use: An examination of reciprocal effects and correlated growth trajectories. *Journal of School Health*, 80, 38–43. [PubMed: 20051089]
- Johnston LD, O'Malley PM, Bachman JG, & Schulenberg JE (2006). Monitoring the future national results on adolescent drug use: Overview of key findings, 2005. Bethesda, MD: National Institute on Drug Abuse.
- Kandel DB, & Wu P (1995). The contributions of mothers and fathers to the intergenerational transmission of cigarette smoking in adolescence. *Journal of Research on Adolescence*, 5, 225–252.
- King K, Meehan B, Trim R, & Chassin L (2006). Substance use and academic outcomes: Synthesizing findings and future directions. *Addiction*, 101, 1688–1689. [PubMed: 17156166]
- Kloos A, Weller RA, Chan R, & Weller EB (2009). Gender differences in adolescent substance abuse. *Current Psychiatry Report*, 11, 120–126.
- Krueter M, Kegler M, Joseph K, Redwood Y, & Hooker M (2012). The impact of implementing selected CBPR strategies to address disparities in urban Atlanta: A retrospective case study. *Health Education Research*, 27(4), 729–741. [PubMed: 22717942]
- Kulis S, Marsiglia FF, & Huddle D (2003). Gender identity, ethnicity, acculturation, and drug use: Exploring differences among adolescents in the southwest. *Journal of Community Psychology*, 32, 167–188.
- Lopez B, Huang S, Wang W, Prado G, Brown C, Zeng G, ... Pantin H (2009). Intrapersonal and ecodevelopmental factors associated with smoking in Hispanic adolescents. *Journal of Child and Family Studies*, 19, 492–503.
- Marsiglia FF, & Hecht ML (2005). keepin' it REAL: An evidence-based program. Santa Cruz, CA: ETR Associates.
- Marsiglia FF, Kulis S, Wagstaff D, Elek E, & Dran D (2005). Acculturation status and substance use prevention with Mexican and Mexican-American youth. *Journal of Social Work Practice in the Addictions*, 5, 85–111. [PubMed: 21660128]

- Marsiglia FF, Williams L, Ayers SL, & Booth JM (2014). *Familias: Preparando la Nueva Generación*: A randomized control trial testing the effects on positive parenting practices. *Research on Social Work Practice*, 24(3), 310–320. 10.1177/1049731513498828 [PubMed: 25506185]
- Martinez C, & Eddy J (2005). Effects of culturally adapted parent management training on Latino youth behavioral health outcomes. *Journal of Consulting and Clinical Psychology*, 73, 841–851. [PubMed: 16287384]
- Ortega J, Huang S, & Prado G (2012). Applying ecodevelopmental theory and the theory of reasoned action to understand HIV risk behaviors among Hispanic adolescents. *Hispanic Health Care International*, 10, 42–52. [PubMed: 23152718]
- Pantin H, Coatsworth JD, Feaster DJ, Newman FL, Briones E, Prado G, ... Szapocznik J (2003). Familias Unidas: The efficacy of an intervention to promote parental investment in Hispanic immigrant families. *Prevention Science*, 4, 189–201. [PubMed: 12940469]
- Pantin H, Schwartz SJ, Sullivan S, Coatsworth D, & Szapocznik J (2003). Preventing substance abuse in Hispanic immigrant adolescents: An ecodevelopmental, parent-centered approach. *Hispanic Journal of Behavioral Sciences*, 25, 469–500.
- Pantin H, Schwartz SJ, Sullivan S, Pardo G, & Szapocznik J (2004). Ecodevelopmental HIV prevention programs for Hispanic adolescents. *American Journal of Orthopsychiatry*, 74, 545–558. [PubMed: 15554814]
- Parsai MB, Castro F, Marsiglia F, Harthun M, & Valdez H (2011). Using community based participatory research to create a culturally grounded intervention for parents and youth to prevent risky behaviors. *Prevention Science*, 12, 34–47. 10.1007/s11121-010-0188-z [PubMed: 21107693]
- Portes A, & Rumbaut RG (2005). Introduction: The second generation and the children of immigrants longitudinal study. *Ethnic and Racial Studies*, 28, 983–999.
- Prado G, Huang S, Cordova D, Malcolm S, Estrada Y, Cano N, ... Brown C (2013). Ecodevelopmental and intrapersonal moderators of a family based preventive intervention for Hispanic youth: A latent profile analysis. *Prevention Science*, 14, 290–299. [PubMed: 23408280]
- Prado G, Huang S, Schwartz SJ, Maldonado-Molina MM, Bandiera FC, de la Rosa M, & Pantin H (2009). What accounts for differences in substance use among US-born and immigrant Hispanic adolescents? Results from a longitudinal prospective cohort study. *Journal of Adolescent Health*, 45(2), 118–125. [PubMed: 19628137]
- Prado G, Pantin H, Huang S, Cordova D, Tapia M, Velazquez M, ... Estrada Y (2012). Effects of a family intervention in reducing HIV risk behaviors among high-risk Hispanic adolescents? A randomized controlled trial. *Archives of Pediatrics and Adolescent Medicine*, 166(2), 127–133. [PubMed: 21969363]
- Prado G, Szapocznik J, Maldonado-Molina M, Schwartz S, & Pantin H (2008). Drug use/abuse prevalence, etiology, prevention, and treatment in Hispanic adolescents: A cultural perspective. *Journal of Drug Issues*, 38, 5–36.
- Rogler LH (1989). The meaning of culturally sensitive research in mental health. *The American Journal of Psychiatry*, 146, 296–303. [PubMed: 2919686]
- Schinke S, Brounstein P, & Gardner S (2002). Science-based prevention programs and principles, 2002. DHHS Pub No. (SMA) 03–3764. Rockville, MD: Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration.
- Schinke S, Moncher M, Palleja J, Zayas LH, & Schilling RF (1988). Hispanic youth, substance abuse, and stress: Implications for prevention research. *International Journal of Addiction*, 23, 809–826.
- Schwartz SJ, Pantin H, Szapocznik J, & Coatsworth JD (2003). Ecodevelopmental theory. In Miller JR, Lerner RM, Schiambert B, & Anderson M (Eds.), *The encyclopedia of human ecology*. Santa Barbara, CA: ABC-CLIO, Inc.
- StataCorp. (2009). *Stata statistical software: Release 10*. College Station, TX: StataCorp LP.
- Szapocznik J, & Coatsworth JD (1999). An ecodevelopmental framework for organizing risk and protection for drug abuse: A developmental model of risk and protection In Glantz M & Hartel CR (Eds.), *Drug abuse: Origins and interventions* (pp. 331–366). Washington, DC: American Psychological Association.

- Tharp A, & Noonan R (2011). Associations between three characteristics of parent–youth relationships, youth substance use and dating attitudes. *Health Promotion Practice*, 13(4), 515–523. [PubMed: 22090151]
- Toray T, Coughlin C, Vuchinich S, & Partricelli P (1991). Gender differences associated with adolescent substance abuse: comparisons and implications for treatment. *Family Relations*, 40, 338–344.
- Tseng V, & Fuligni AJ (2000). Parent-adolescent language use and relationships among immigrant families with East Asian, Filipino, and Latin American backgrounds. *Journal of Marriage and the Family*, 62, 465–476.
- Voisine S, Parsai M, Marsiglia FF, Kulis S, & Nieri T (2008). Effects of parental monitoring, permissiveness, and injunctive norms on substance use among Mexican and Mexican American adolescents. *Families in Society*, 89, 264–273. [PubMed: 20668660]
- Wagner KD, Ritt-Olson A, Chou C, Pokhrel P, Duan L, Baezconde-Garbanati L, ... Unger JB (2010). Associations between family structure, family functioning, and substance use among Hispanic/Latino adolescents. 10.1037/a0018497
- Williams LR, Ayers S, Baldwin A, & Marsiglia FF (2016). Delaying youth substance-use initiation: A cluster randomized controlled trial of complementary youth and parenting interventions. *Journal of the Society for Social Work and Research*, 7(1), 177–200.
- Williams LR, Ayers SL, Garvey M, Marsiglia FF, & Castro FG (2012). The efficacy of a culturally-based parenting intervention: Strengthening open communication between Mexican-heritage parents and their adolescent children. *Journal of the Society for Social Work and Research*, 3(4), 296–307. 10.5243/jsswr.2012.18ng [PubMed: 23805361]
- Williams LR, Marsiglia FF, Baldwin A, & Ayers SL (2015). Unintended effects of an intervention supporting Mexican-heritage youth: Decreased parent heavy drinking. *Research on Social Work Practice*, 25(2), 181–189. 10.1177/1049731514524030 [PubMed: 25755619]

Figure 1.
Substance use (Wave 2) on interactions between treatment group and substance use (Wave 1).

Table 1.

Descriptive Statistics for the Sample

	N	Percent ^a	Mean	SD
Alcohol				
Amount (wave 1)	445	23.2	1.41	0.96
Amount (wave 2)	417	30.0	1.63	1.24
Frequency (wave 1)	443	16.9	1.27	0.73
Frequency (wave 2)	321	34.3	1.64	1.17
Cigarette				
Amount (wave 1)	443	5.4	1.10	0.52
Amount (wave 2)	415	7.9	1.19	0.76
Frequency (wave 1)	438	3.7	1.06	0.46
Frequency (wave 2)	406	6.7	1.15	0.69
Marijuana				
Amount (wave 1)	442	7.0	1.15	0.68
Amount (wave 2)	414	11.6	1.33	1.06
Frequency (wave 1)	438	5.7	1.10	0.51
Frequency (wave 2)	406	10.6	1.29	1.05
Inhalant				
Frequency (wave 1)	441	7.9	1.19	0.80
Frequency (wave 2)	407	12.0	1.26	0.84
Treatment group				
Youth only	462	35.5		
Control	462	36.2		
Parent & youth	462	28.4		
Gender				
Male	458	49.8		
Ethnicity				
Latino ethnicity	462	90.0		
Lunch status				
Free lunch	389	84.2		
Usual grades in school	419		3.05	1.56

Note. SD standard deviation.

^aFor the = substance use measures, percent represents the percent of youth using the substance, regardless of frequency.

OLS Regression Results for Substance Use (Wave 2) on Treatment Group and Substance Use (Wave 1)

	Substance use (wave 2)													
	Alcohol			Cigarette			Marijuana			Inhalant				
	Model 1 Amount	Model 2 Frequency	Model 3 Amount	Model 4 Frequency	Model 5 Amount	Model 6 Frequency	Model 7 Frequency	Model 8 Amount	Model 9 Frequency	Model 10 Amount	Model 11 Frequency	Model 12 Amount		
b	SE	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE	
Amount (wave 1)	0.85***	0.12												
Frequency (wave 1)			0.68***	0.18	0.44***	0.14	-0.01	0.26	0.64***	0.15	0.58***	0.09	0.44***	0.11
Treatment group ³														
Parent & youth	0.25	0.28	0.50	0.32	0.83 ⁺	0.44	-0.45	0.33	0.46 ⁺	0.27	-0.20	0.17	0.44 [*]	0.20
Control	-0.22	0.25	-0.81 [*]	0.32	-0.72***	0.21	-1.16***	0.29	-0.41	0.27	-0.65***	0.20	0.02	0.19
Parent & youth × substance use (wave 1) ^b	-0.32 ⁺	0.18	-0.51 [*]	0.22	-0.75 ⁺	0.42	0.45	0.31	-0.59**	0.21	0.16	0.14	-0.41**	0.15
Control × substance use (wave 1) ^b	-0.06	0.15	0.44 ⁺	0.23	0.64***	0.18	1.07***	0.28	0.24	0.21	0.62***	0.17	-0.08	0.14
Gender ^c	-0.13	0.11	-0.15	0.13	-0.04	0.07	-0.07	0.05	-0.08	0.11	-0.03	0.07	-0.09	0.09
Usual grades in school	-0.02	0.04	-0.05	0.04	0.04	0.02	0.04**	0.02	0.01	0.04	0.01	0.02	0.01	0.03
Latino ethnicity ^d	-0.08	0.25	-0.01	0.27	-0.03	0.16	0.02	0.08	0.20	0.23	0.09	0.12	-0.34 ⁺	0.20
Free lunch status ^e	0.30 ⁺	0.16	0.26	0.18	-0.01	0.10	-0.01	0.06	0.21	0.14	0.10	0.09	0.29 [*]	0.12
Intercept	0.56 ⁺	0.33	0.92 [*]	0.39	0.64**	0.24	1.04***	0.28	0.34	0.31	0.42 [*]	0.19	0.86***	0.27

Note. OLS = ordinary least squares; SE = standard error.

^aReference group = youth only.

^bSubstance use (wave 1) refers to the specific substance included in each model.

^cReference group = males.

^dReference group = non-Latino ethnicity.

^eReference group = reduced or full fair lunch.

p < .001.

$p < .10$.
*
 $p < .05$.
*
 $p < .10$.
+

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript