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The Effect of Positive Adolescent Life Skills Training on Long Term Outcomes for High-Risk Teens

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Abstract

This paper reports on long term follow-up data—12 months post intervention—from a clinical trial of an intervention designed to enhance teen resilience by supporting the development of social skills needed to make positive connections and overcome the influence of negative environmental influences. Sixteen adolescents aged 12 to 16 (10 boys and 6 girls) attending an inner city urban secondary school participated in a 32 week intervention study. Subjects were randomly assigned within sex to Teen Club plus Positive Adolescent Life Skills (PALS) or Teen Club intervention groups. The Problem Oriented Screening Instrument for Teenagers (POSIT) was used to measure the dependent variables (problems related to substance use, health, mental health, family relations, peer relations, education status, vocational status, social skills, leisure and recreation, and aggression). The small sample size limited the ability to determine statistical differences between the POSIT subscale scores for PALS plus Teen Club or Teen Club only interventions. Descriptive data suggest mixed results for both interventions and sex groups. Most important were reductions in mental health problems for all boys in both groups and only slightly increased numbers of problems in substance use for PALS boys and girls over time. Other trends by group and sex are reported.

Keywords

Life Skills Training; Positive Adolescent Life Skills; PALS; Positive Youth Development; Problem Oriented Screening Instrument for Teenagers; POSIT; Cognitive Behavioral Groups for Adolescents

INTRODUCTION

There is considerable support in the literature that positive youth development (PYD) programs and those using cognitive behavioral therapy approaches are efficacious in fostering resiliency and good coping skills among high risk adolescents. Common components of PYD programs include the use of positive social skills, constructive use of leisure time, connections to caring and concerned adults, and development of decision-making skills that will help adolescents to resist high risk behavior (Tebes et al., 2007). Cognitive behavioral therapeutic approaches with adolescents –although varied in structure

and approach—are emerging as effective treatments for reducing adolescent substance use and related problems (Waldron & Kaminer, 2004). They are also used to increase physical exercise in sedentary youth, which can benefit physical health (Hortz & Petosa, 2006). There is evidence that adolescent substance use and high risk sexual behavior tend to co-occur and therefore focusing on reducing one high risk behavior can also address multiple health risks in teenage populations (Halpern et al., 2004).

The role of non-parental adult role models in PYD programs appears to contribute to the success of these interventions in promoting resiliency by connecting youth to non-parental adults with resources not usually available to them. Grossman and Bulle (2006), in a review of literature published in the last 15 years, suggest that positive connections to non-parental adults is a protective factor that contributes to better outcomes in school, social and emotional well-being, connections to social capital, and reductions in risk-taking behaviors.

The purpose of this paper is to report on long term outcomes from a clinical trial of group interventions designed to enhance teen resilience by fostering positive connections to non-parental adults and development of social and behavioral skills that could mitigate the influence of negative family, peer, and environmental influences. These influences can lead to high risk behaviors, poor educational and vocational outcomes, and ineffective interpersonal relationships with peers, teachers, and family members. The research question is: What is the effect of participation in one of four group conditions: PALS plus Teen Club (boys and girls groups) and Teen Club alone (boys and girls groups) on the measures of behavioral risks 10 subscales at baseline, end of intervention, and 12 months post intervention? Initial findings (baseline and post program completion) from this study were reported previously (Tuttle, Campbell-Heider & David, 2006). Participant outcomes on the Problem Oriented Screening Instrument for Teenagers (POSIT) (NIDA, 1999) suggested some positive trends but were limited in statistical significance by the small sample of 16 adolescent subjects. In this paper, the focus is on baseline to 12 month post intervention group trends and on individual subject changes within sex and intervention groups over time.

Adolescent Risk Behaviors, Sex Differences and Prevention Interventions

The predictive factors associated with substance use and risky sexual behaviors are well known and include problems with: (1) family dynamics; (2) parental monitoring; (3) negative peer influences; (4) mental health; (5) self-efficacy to change behaviors; and (6) coping skills (Guiao, Blakemore & Wise, 2004; Tuttle, 1995). The Youth Behavior Surveillance System (YRBSS) initiated in 1991 provides bi-yearly assessment of adolescent high risk behaviors (Grunbaum et al., 2002). In the US three fourths of all deaths among people aged 10 to 24 are related to accidents, homicide, and suicide and a majority of these deaths can be traced to substance use (Guiao et al., 2004). Other studies suggest that much of the morbidity and mortality in the country can be attributed to health risks associated with smoking, poor diet, sedentary lifestyle, alcohol and substance use, and risky sexual activities (Wu, Rose, & Bancroft, 2006). When teens engage in drinking alcohol and other substance use, they endanger their long term health and often that of others through unintended accidents. Wu et al. (2006) explored the sex differences in health risks reported on the YRBSS and found differences in weight perceptions and dieting strategies for male and female eighth graders; more females reported being overweight and had a higher tendency to use unhealthy practices such as skipping breakfast, using diet pills, vomiting, and laxatives to lose weight than their male counterparts who also expressed concerns about their weight. This study also demonstrated that male 8th graders are more likely to be in physical fights and that this problem is also associated with the concurrent use of cigarettes, illicit drugs and alcohol. This same pattern was not demonstrated for the female 8th graders in the study. In their conclusions, Wu et al. (2006) suggest a need for prevention interventions starting early

in the middle school years with a focus on deterring carrying weapons, involvement in violence, use of tobacco, alcohol and other drugs, undesirable diet patterns, and inactivity. There is other evidence that use of maladaptive dieting strategies such as vomiting or laxative use to lose weight are also associated with substance use in older adolescents. These risky behaviors are more strongly associated for females than for males (Garry, Morrissey & Whetstone, 2002).

Much of the emerging literature addressing sex differences in adolescent risk behaviors concerns the prevention of sexual and substance use risks, which are frequently co-occurring problems. Sexual and substance use risk-taking behaviors are also strongly associated with or lead to other mood and interpersonal problems. However, it appears that engagement in risky behavior and negative mood consequences are differentially manifested by boys and girls. When risk patterns and depressive symptoms in teens are stratified by sex, some interesting differences emerge. In teens of both sexes who abstain from sex, drinking, and smoking there are few group differences. Sex differences are most apparent in those adolescents who have the highest risk profiles across a spectrum of behavioral activities and these teens also report the most depressive symptoms. However, females who engage in even low to moderate risky behaviors have more depressive symptoms than their male counterparts with the same risk profile (Waller et al., 2006). These data suggest that adolescent girls appear more vulnerable to depression than boys at lower levels of risky behavior, which indicates a need for early onset of prevention interventions. However, there is also ample evidence that boys engage in violence, sexual risk taking, and substance use at an earlier age than girls, which argues for starting preventive programs for both sexes at or before the onset of puberty.

An interesting perspective on risk taking differences in boys and girls relates to the notion that attitudes about one's sex might set the stage for violence, substance use, and heterosexual risky behaviors (Pleck & O'Donnell, 2001). These researchers studied the attitudes about sex role behavior of 587 African American and Latino early adolescents to determine if there was a relationship between these attitudes and high risk behaviors. The "gender conventionality" theme—the femininity and masculinity traits—in the teen study sample was assessed. It was hypothesized that traditional attitudes about males would be positively associated with violence and substance use risk and that traditional attitudes about females would be positively associated with heterosexual risk taking. They found that violence-related behaviors, substance use, and heterosexual activity are associated with traditional beliefs about masculinity in males. In females traditional beliefs about masculinity were also associated with sexual activity.

Pulerwitz and colleagues (2006) applied a "social constructionist or interactive theory of gender socialization" (p. 6) in their quasi-experimental study of interactive group education sessions with young men. The theory of "gender socialization" relates to behavioral norms that young men learn from their social environment. Sex role inequitable norms are those that value one sex group over the other and give rise to such behaviors as coercive or abusive treatment of partners. Pulerwitz and her team (2006) found that young men who participated in interactive group education sessions that promoted more equitable sex group norms were less likely to engage in high risk sexual behaviors. Pedlow and Carey (2003; 2004) have systematically reviewed 24 randomized controlled trials of risk reduction interventions for adolescents. Sexual role identity was specifically addressed in only a few studies.

Among adolescents and young adults (12–24 years of age) in the United States, the proportion of HIV that is sexually acquired by women (85%) has remained about equal to that in men (87%). However, while sexual contact with other males remains the primary

mechanism by which adolescent males (74%) become infected, adolescent females are primarily infected by their male partners (Rangel, Gavin, Reed, Fowler & Lee, 2006). The research literature on high risk sexual behavior is heavily skewed toward studies of women's attitudes, behaviors, and decision-making about sexuality. While some research has explored dyadic influences, very little has been published about men's beliefs and behaviors. This is troubling, since the sexual transmission of HIV is a function of sexual interactions. Behavioral risk reduction is the mainstay of HIV prevention (DiClemente, 1992; Fisher & Fisher, 1992; Pedlow & Carey, 2004). When compared with adults, adolescents are more likely to take risks by not using condoms with every sexual encounter and by having multiple partners (Rangel et al., 2006). Most of the behavioral interventions have targeted adolescent females (Pedlow & Carey, 2004; Morrison-Beedy, Carey, Kowalski, & Tu, 2005). Factors influencing adolescents' motivation for behavior change are multiple and complex. For example, Voisin (2003, 2005) found that exposure to violence in the family and/or community was significantly and positively correlated with an increased number of HIV related risk behaviors in adolescents of both sexes. Boys who were exposed to family violence are at particular risk. Family communication, particularly adolescents with their mothers, has been found to be a protective factor in the prevention of risky sexual behaviors (McNeely et al., 2002). Emerging notions that non-parental adult attachments and cognitive based prevention programs to assist high risk teens to navigate negative environmental, socio-cultural factors, and interpersonal relationships with peers, teachers, parents and community leaders combined to set the stage for this study.

METHOD

Initial Development of the "Teen Club" Intervention

The initial "Teen Club" nursing intervention was developed in 1992 in response to needs recognized among inner-city teens attending an urban Community Health Center's Teen Center. These teens had chaotic family and social environments that included violence, poverty, and substance abuse. A community health nurse and community outreach worker created the group intervention in order to provide additional social support, health education, community outreach, and instrumental assistance to these high-risk teens (Tuttle, Bidwell-Cerone, Campbell-Heider, Richeson, & Collins, 2000). Male and female teens participated on a weekly basis for an average of 2 years; however, there was more follow-up on the female participants available for retrospective analysis in relation to participant outcomes. Retrospective data suggest that 5 years after their initial involvement, female graduates of the first "Teen Club" cohort (n=12) had more workforce participation, greater school completion, fewer pregnancies, and less depression when compared with 12 similar adolescents who did not receive the intervention (Tuttle, Campbell-Heider, Bidwell-Cerone, Richeson, & Collins, 2001). Another preliminary study using concept mapping techniques determined that "Teen Club" participants perceived connections to group leaders as most helpful (Campbell-Heider, Tuttle, Bidwell-Cerone, Richeson, & Collins, 2003). These studies suggested that the "Teen Club" intervention was providing needed support to high-risk teens but might benefit from an intervention component that formally addressed drug and alcohol prevention. In addition, formal data collection from the boys' groups was needed.

PALS Training

The cognitive-behavioral theory that underlies PALS suggests that health risk behavior can be modified by teaching skills for reducing substance use and initiating behavioral change (Botvin & Botvin, 1992; Waldron & Kaminer, 2004). This notion also corresponds to the literature that suggests a teen's positive connectedness with the family, social, and community environment is protective against substance abuse (Campbell-Heider et al.,

2003; Resnick et al., 1997). The PALS training program is a cognitive-behavioral, skill-building intervention that has shown promise in improving social skills in a general population of mainly White 8th graders in a rural environment (Hall, Richardson, Spears, & Grinstead, 1996). It contains 25 cognitive behavioral skill-building sessions that are divided into five modules. The program was tested on a rural sample of 146 eighth graders. Post intervention scores indicated significant improvements in mean scores on the Iowa Social Skills Improvement Test for problem solving, communication, handling criticism, and saying “no” to high-risk behavior subscales.

Another study of White, middle class, rural teens (Richardson, Hall, Spears, & Weeks, 1996) found sex differences in the effectiveness of PALS training for eighth graders. Females made greater improvements shortly after the intervention in social competence for assertiveness in refusing high-risk behavior and handling criticism. At the 1-year follow-up, boys’ improvement exceeded the females’ improvement only in handling criticism. The other sex differences in social competence persisted.

The addition of PALS training to the existing Teen Club intervention was intended to augment the acquisition of behavioral skills that support adolescents’ ability to make positive connections with their social environments, and avoid risky behaviors such as substance abuse. The original study was to take place in a Community Health Center Teen Center. However, shortly before the onset of the study, this clinical facility closed, necessitating the acquisition of a new study site. The Teen Center was a unique study site in that it also included connections to adolescent primary care targeted to high risk adolescents or those without insurance coverage. The study was consequently moved to an inner city school that served the target population.

Institutional Review and Subject Recruitment—Once institutional review board and school district approval were obtained, adolescents between 12 and 16 years of age were recruited at a large urban secondary school. In order to participate, teens needed to be able to speak and understand English. Exclusion criteria included diagnoses of developmental delay, such as teens enrolled in self-contained special education programs (as opposed to merely receiving special education services), and previous participation in “Teen Club.” Of the 39 students who indicated interest, only 18 were able to provide both parental consent and teen assent to participate.

Procedures—The subjects were randomly assigned within sex to one of two conditions: conventional “Teen Club” or “Teen Club” plus PALS. Shortly after the study began, two students dropped out. One was placed on long-term suspension and the other had a schedule conflict that kept her from attending. The remaining 16 adolescents (ten males and six females) participated in weekly group meetings and activities. These were held separately for each condition in order to minimize contamination between the groups. The two conditions (four separate groups) were implemented during the same time period (the 2003–2004 school year) and for the same number of weeks (32) to reduce threats to internal validity such as history and maturation. The group meetings were held after school in a large meeting room at the school. Group leaders were available between meetings for support and case management.

Interventions

All teens participated in weekly group meetings. Healthy snacks were served at the beginning of each meeting and transportation home was provided. There were no structured cognitive behavioral life skills training in the “Teen Club” only condition. “Teen Club” plus PALS subjects participated in 25 cognitive behavioral skill-building sessions divided into

five modules. The content of the sessions can be found in the 2006 article by Tuttle and colleagues.

At least one leader in each group was a registered nurse. The community health nurse who founded “Teen Club” trained all group leaders in “Teen Club” techniques. A consultant with experience in using the PALS intervention trained the group leaders assigned to the experimental groups. PALS group leaders were given training manuals and the participants all had PALS workbooks. In order to assure the integrity of the intervention, the investigators periodically reviewed a random selection of session audio-recordings and directly observed each group.

All groups participated in incentive activities every sixth week. Teens who had attended at least four of the five previous weeks’ sessions chose group activities, such as playing basketball at a local university or attending a movie in the community. Points were also given for attending group sessions and completing the study instruments. These points were exchanged for mall gift certificates at the end of the year.

MEASURES

The study’s dependent variables consisted of indicators of risk-taking behavior in adolescents. These behaviors are operationalized by the Problem Oriented Screening Instrument for Teenagers (POSIT) subscales: (a) Substance Use/Abuse; (b) Physical Health; (c) Mental Health; (d) Family Relationships; (e) Peer Relationships; (f) Educational Status; (g) Vocational Status; (h) Social Skills; (i) Leisure/Recreation; and (j) Aggressive Behavior/Delinquency. The POSIT is a self-report measure of 139 items at a fifth grade reading level and is available in English and Spanish (DHHS, 1999). It has been used widely in both clinical practice and research (Scafidi, Field, Spears, & Weeks, 1997; National Institute on Drug Abuse [NIDA], 1999). Examples of items include: “Do your friends get bored at parties when there is no alcohol or drugs served?” (Substance Use/Abuse), and “Do you and your parents or guardians do lots of things together?” (Family Relationships). Evidence for the validity of the instrument is well established (Knight, Goodman, Pulerwitz, & Durant, 2001; McLaney, DelBoca, & Babor, 1994). Knight et al. (2001) investigated the test-retest reliability of the POSIT in a consecutive sample of 193 adolescents aged 15 to 18 years drawn from a general adolescent medical practice. These authors reported that the one-week test-retest reliability of all 10 subscales ranges from $r = .72$ to $.88$. Knight et al. (2001) reported Cronbach’s Alpha (internal consistency reliability) coefficients of $.58$ to $.87$ for 7 subscales (Substance Use/Abuse, Mental Health Status, Family Relations, Peer Relations, Social Skills, Educational Status, and Aggressive Behavior/Delinquency).

Demographic data were collected including age, race, grade in school (five items) and whether or not the use of drugs or alcohol by “someone close to you” has “affected your life” (one item). After the last group session, the leaders met with their groups to solicit feedback from the teens regarding the usefulness and cultural relevance of the interventions. Group leaders’ feedback was also solicited.

RESULTS

All subjects were 12–15 years of age at the beginning of the study and in grade 7, 9, or 10. Most reported no personal experience with substance use, and about half indicated that they were concerned about substance abuse in someone “close to” them. Eleven participants described their race as Black and five reported being Hispanic. Mean attendance at the weekly meetings ranged from 24 sessions in the boys’ PALS group to 28 sessions in the boys’ Teen Club only group. The girls’ PALS group members averaged 26 sessions, while

the mean number of sessions attended by the girls in the Teen Club only group was 27. These included the weeks in which the groups participated in an activity as incentive.

Descriptive statistics were used to compare the four groups (PALS girls, PALS boys, Teen Club girls, Teen Club boys) at each of the testing times (pre-intervention, post interventions, and 12 months post interventions). Two of the 16 subjects were excluded from the analyses in this study due to missing data. The small cell sizes in these analyses precluded use of inferential testing. Two subscales of particular interest to the researchers—substance use and mental health problems—were further explored using slope analysis. Slope analysis is a statistical technique to determine change over time, which in this study translates to the number of problems reported for each individual in the four conditions over time.

To answer the research question, the baseline POSIT scores for the two conditions and two sexes were compared to post intervention scores at the end of the intervention and 12 months post intervention using descriptive statistics. Table 1 shows the scores by time periods and by intervention group and sex for all of the POSIT subscales. Higher values signify a larger number of problems in the particular domain. Missing data in some of the groups necessitated eliminating two subjects from this analysis. Of prime interest in question one is the long term outcomes (baseline to 12 months post intervention) related to group and sex.

There were mixed results for the two intervention groups and sexes. The mean number of problems at 12 months post intervention that show *consistent* (all measures demonstrate decreases from baseline) are highlighted for each subscale. Of particular interest to the researchers was the trend to fewer problems with physical health, mental health, peer relations, and aggression for PALS boys. PALS boys had greater problems from baseline to 12 months post intervention with substance use, family relationships, vocational status, social skills, and leisure. PALS girls has fewer problems from baseline to 12 months post intervention in peer relationships and social skills, and more problems for substance use, mental health, family relationships, educational status, vocational status, and aggression. However, the increase in problems in substance use for PALS girls was the lowest of any of the other conditions.

The Teen Club boys showed fewer problems in mental health and aggression and more problems in substance use, family relationships, educational status, vocational status, social skills, and leisure. Teen Club girls did not have *consistent* decreases in problems for any of the scales and demonstrated *consistent* increases in only two areas—substance use and peer relations. Other changes were inconsistent over time and therefore not helpful in determining differences in trends for this group.

It was apparent that over time the teens were also aging by approximately two years from start of intervention to the 12 month follow-up and that many of the problem areas also increased but not in consistent patterns for all time periods. Conversely, no subscale scores were lower at the 12 months follow-up time in all four groups.

However, the mean number of substance use problems was low at baseline and remained relatively low 12 months after the interventions were completed. These data also demonstrate PALS boys and girls sustained the lowest levels in substance use. However, Teen Club boys and girls reported the highest number of substance use problems. Of particular concern were the Teen Club girls who reported the highest numbers of problems on the substance use and mental health subscales.

Slope analysis was used to measure changes in numbers of problems over time for each subject in the study. Kraemer and Thiemann (1989), as cited by Knapp (1998), proposed that

plotting the dependent measures on the Y axis and time on the X axis and then determining the slope of the line that best fits the data will allow interpretation of the average change over time. The resulting slopes produce a positive, negative, or zero number that represents an increase, decrease, or no change in reported problems for the subscale being examined. This analysis was conducted using three time periods to further examine two subscales of particular interest in this paper—substance use and mental health problems. Table 2 displays the slopes (average change for reported problems) for substance use and mental health over the two year period from start of the study to the final measurement at 12 months post intervention. The baseline, end of intervention (32 weeks), and 12 months post intervention (80 weeks) measurements on the X axis are converted to 0, .402, and 1, respectively, which represent the proportion of time intervals to the total time calculated for this study.

The substance use scale demonstrates that 4 of the 14 subjects had no change in the number of problems related to substance use, 7 of the subjects had an increased number of problems, and only 3 reported a decrease in these problems. When the mental health slopes were examined, 11 of the 14 subjects achieved a reduction in number of problems as compared with only 3 who reported more problems over time. Most interesting is that all 8 of the boys (PALS and Teen Club) were better off in relation to baseline in this subscale. The girls' results in both groups were mixed with 2 of the 3 in PALS and 1 in Teen Club reporting higher numbers of mental health problems. These data suggest that group intervention did not predict mental health problems in boys or girls. However, all the males in this study reported lower numbers of mental health problems over time. Results for girls in both groups were mixed, which suggests that in this study the girls in either group did worse with mental health than their male peers.

Two exemplars of the slope analysis are presented to illustrate this analysis graphically. In Figure 1, subject #3 is a Black non-Hispanic male in the PALS group who was 12 years and 0 months and in the 7th grade reported decreasing problems with mental health over time.

In Figure 2, subject #10 was a White Latina female who was 13 years, 3 months and in the 7th grade and assigned to the PALS group. She started out with few problems in mental health but these problems increased steadily over time. Neither of these subjects identified any concerns about drug or alcohol use in someone close to them. These two cases illustrate divergent outcomes but cannot be attributed to the intervention group or sex in this study.

DISCUSSION

Limitations

The change in study site necessitated relocation of the study to an inner city secondary school, which precluded the connection of the study to a primary care clinical practice. While we were able to solicit our desired number of teens, a major limitation proved to be the difficulty connecting with the parent or guardian to obtain permission for study participation. This barrier contributed to the small sample size and inability to perform inferential tests that would confirm group and sex differences in this clinical trial. The PALS program was developed on a sample of White, rural 8th grade boys and girls. This study was the first known application of this behavioral curriculum in an inner city minority middle school sample. To address the potential cultural divide, minority group leaders were recruited. All groups had two leaders with at least one being African American. The principal and co-investigators also attended several of the intervention groups to observe the implementation of the PALS and Teen Club programs. No problems related to cultural orientation were detected. During the last meeting of the programs, subjects in each group participated in post program interviews. One question asked, "How can we make the program most helpful for teens from your background?" The teens' comments did support

the cultural relevance of both programs. These results were reported in an earlier paper (Tuttle et al., 2006).

Despite the limitations, descriptive data indicate some patterns of interest by groups and sex. Most important are the consistent decreases over time in subscale problems for mental health in both boys groups and in peer relations problems for boys and girls in the PALS intervention. Since both interventions could bolster resiliency by fostering positive connections to non-parental adults and health education about risky behaviors, it is possible that both interventions influenced the decreases in mental health problems in the boys groups. The cognitive behavioral component of PALS that was added to the Teen Club intervention augmented communication skills through role playing, homework assignments, and discussion techniques that focused on being “assertive” rather than “aggressive” when dealing with adults and peers. Consequently, the decrease in peer relations problems for boys and girls in the PALS group makes sense.

Other trends with clinical significance and decreases over time are PALS boys and Teen Club girls in the aggression and delinquency area. Unfortunately, it is not possible to connect these positive outcomes with either group or sex. The mixed trends (no consistent changes over time) indicate that many problems increased over time. However, the teens also aged by approximately two years from start of the study to the last measurement period. Increased problems in functional areas that are inherent in this developmental period could account for some of this situation. In particular, teens often engage in normative experimentation with substances and frequently resist complying with authority figures, which can influence family and peer relationships. This situation seems most clear in the substance use/abuse area where all groups reported increased problems. In this subscale, all of the 17 items relate to at risk or actual abuse of drugs or alcohol that would be clinically significant in a teenage population. The mental health questions include 22 items with 9 of these items overlapping into other dimensions such as educational status and peer relationships and again all of these items are clinically relevant. Consequently, even small changes in numbers on these scales can alert the clinician to impending or actual problems with substances and mental health that might require brief interventions or referral for specialty treatment.

Communications with the originator of the POSIT (Rahdert, January 2008) suggested that teens tend to be more honest in answering the questions on this instrument over time, which could also contribute to higher intervention outcome scores. The POSIT manual presents data from several studies (teens age 12–19) that tested teens with known low, medium, and high risk subscale problems to determine an estimate of risk category related to the numbers of problems on each scale. Low risk in substance use/abuse is zero mean problems, medium risk is a mean of 2.8 (SD = 1.7), and high risk is a mean of 10.5 (SD = 2.6). This situation places all of the teens in this study in the medium risk category for substance use, which is a clear indicator for clinical intervention. The risk categories for mental health are low risk (M = 2.1, SD = 1.4), medium risk (M = 7.2, SD = 1.7) and high risk (M = 14.4, SD = 2.8). In this study, the group data also best fit the medium category for mental health problems. However, individual data presented for subjects 3 and 10 clearly demonstrate their high risk status for mental health as compared with the comparison data from the POSIT manual.

The individual slope data demonstrates mixed results for decreases in problems related to alcohol in all groups but stronger support for decreases in males for mental health problems over time. The case example in Figure 1 illustrates an ideal scenario; that is a drop from almost 20 problems out of a possible 22 in mental health to a low of 6. This boy was in the PALS intervention and was only 12 at the onset of the study. Hopefully, the early

intervention in the PALS programs contributed to his improved mental health. The concurrent opposite pattern in subject 10 who was also in a PALS group illustrates the worst case scenario; she reported medium levels in mental health risk at the onset of the study and continued to decline. This situation is supported in the literature that indicates teen girls who engage in even low to medium levels of risky behaviors have more mood disorders symptoms than their male counterparts (Waller et al., 2006). Since all of the teen girls in this study were in the medium risk category for all of the subscales, it would be expected that they might experience more deterioration over time in mental health as compared with their male peers. According to Waller et al. (2006) teenage girls are simply more vulnerable to mood and other mental health problems than boys with similar risk factors. They are also apt to have greater negative consequences from substance use as it is closely associated with unsafe sex that can lead to pregnancy and health risk outcomes related to sexually transmitted disease, including HIV.

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE AND FUTURE RESEARCH

The results of this study suggest that either group intervention might offer some protection to teenage males in relation to mental health problems in particular. The cognitive behavioral interventions in the PALS groups for both sexes were most associated with peer relations. Teen girls in both groups tended to report more problems than their male counterparts but these data are not consistent over all time periods. In light of the data that indicate this sample corresponds to a medium risk teen group, any improvement over time is clinically significant.

It is clear that even at baseline, this sample of early teens could benefit greatly by early detection of substance use and identification of mental health problems. Once these diagnoses are made, the dilemma for clinicians is what to do to overcome environmental and family circumstances that promote aggressive rather than assertive communication styles and make substance use appear to be normative in their cultural and socioeconomic context. These were the motivations for the start of the Teen Club group many years ago.

Clearly, the group interventions under study require further testing on larger samples to determine if they can indeed foster resiliency and help teens make good choices that resist negative community, family, and peer influences. The lengthy time frame for the PALS program also needs further evaluation to determine if a shortened more cost effective session would be of equal benefit. The initiation of a 32 week intervention requires considerable resources and consistently present leaders. These “costs” can be considerable and require supportive parents, clinical providers, and community leaders. This study was funded and utilized nursing doctoral students and other mental health professionals for group leadership. Even so, it was difficult to staff these groups over time. Closer connections to a primary care setting would facilitate group leadership within the context of the employment of advanced practice nurses.

Finally, even small decreases in the functional problems on any of the POSIT subscales are clinically important and relevant to other clinical services. Teens need to connect with positive adult role models to learn how to mirror healthy decision-making, refuse risk taking, and communicate effectively. The interventions in this study could be a *new* approach to accomplishing this goal.

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FIG. 1.
Change in mental health POSIT score for subject #3

FIG. 2.
Change in mental health POSIT score for subject #10

TABLE 1

POSIT subscale scores by intervention and sex over three time points

POSIT Subscale	Condition	Sex	Baseline (N = 14)	End of group (N = 14)	12 Months Post (N = 14)
A. Substance use/abuse	PALS (n = 3)	Boys	.333	.000	1.333
	PALS (n = 3)	Girls	.000	1.667	.333
	TC (n = 5)	Boys	.200	.200	2.000
	TC (n = 3)	Girls	.667	1.667	2.667
B. Physical health	PALS	Boys	3.667	2.000	1.333
	PALS	Girls	2.000	1.667	2.000
	TC	Boys	1.400	.600	.800
	TC	Girls	3.000	2.667	3.333
C. Mental health	PALS	Boys	8.333	7.667	3.667
	PALS	Girls	5.333	6.000	7.333
	TC	Boys	6.000	5.600	4.200
	TC	Girls	9.000	7.333	7.667
D. Family relations	PALS	Boys	2.000	1.600	4.667
	PALS	Girls	1.333	2.667	2.333
	TC	Boys	3.200	1.600	3.600
	TC	Girls	2.000	1.000	2.667
E. Peer relations	PALS	Boys	4.000	2.667	1.667
	PALS	Girls	2.667	2.667	2.333
	TC	Boys	2.600	2.000	2.600
	TC	Girls	2.667	3.667	4.000
F. Educational status	PALS	Boys	8.333	6.333	6.667
	PALS	Girls	7.667	7.333	8.667
	TC	Boys	7.400	5.800	8.000
	TC	Girls	8.333	8.333	8.333
G. Vocational status	PALS	Boys	3.000	2.000	8.333
	PALS	Girls	3.667	4.667	6.000
	TC	Boys	3.800	2.800	6.000
	TC	Girls	3.667	2.333	5.333
H. Social skills	PALS	Boys	3.333	3.333	5.000

POSIT Subscale	Condition	Sex	Baseline (N = 14)	End of group (N = 14)	12 Months Post (N = 14)
I. Leisure & recreation	PALS	Girls	4,000	5,000	2,333
	TC	Boys	2,600	2,800	3,200
	TC	Girls	3,667	2,667	3,000
	PALS	Boys	3,667	5,000	6,333
	PALS	Girls	5,000	4,667	4,667
	TC	Boys	3,000	3,600	4,000
J. Aggression & delinquency	TC	Girls	4,667	3,000	4,000
	PALS	Boys	7,333	7,000	3,333
	PALS	Girls	3,667	5,667	5,667
	TC	Boys	4,000	5,400	3,800
	TC	Girls	7,000	7,667	4,333

TABLE 2

Slope analysis for participants by group and sex for substance abuse and mental health POSIT scores

Subject Number	Group 1 = PALS 2 = TC	Sex 1 = male 2 = female	Substance Use/Abuse Slope	Mental Health Slope
2	1	1	0	-1.0519
3	1	1	1.181	-13.287
4	1	1	2.1037	-0.129
5	2	1	0	-0.9228
6	2	1	-0.129	-1.9747
7	2	1	5.259	-4.872
8	2	1	4.336	-0.387
9	2	1	0	-1.0519
10	1	2	-0.645	5.13
11	1	2	1.0519	3.285
12	1	2	0	-2.362
13	2	2	-0.129	1.9747
14	2	2	1.0519	-2.233
15	2	2	5.00129	-3.304

Negative slope = decreased problems

Positive slope = increased problems

Zero = no change