

Activity Involvement Among Suicidal and Nonsuicidal High-Risk and Typical Adolescents

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The purpose of this study was to compare weekly activities among four groups of randomly selected high-risk and typical high school students: (1) potential dropouts at suicide risk, (2) typical youth at suicide risk, (3) potential dropouts not at suicide risk, and (4) typical youth not at suicide risk. Of the 1,286 participants, 39.4% of the high-risk and 30.1% of typical high school students screened in at suicide risk. Weekly activity comparisons across the four groups showed that suicide-risk adolescents, regardless of potential dropout status, engaged in more solitary activities on weekdays and weekends than did their nonsuicide risk peers. High-risk potential dropout youth engaged in less homework and more social activities during weekdays and weekends than did the typical high school students. These results provide important insight into the weekly activity involvement of at-risk youth while helping to gain a better understanding of suicide-risk adolescents. Implications of these findings are discussed for identifying youth at risk for suicidal behavior and for prevention programming.

Suicide is one of the leading causes of death in youth aged 15–19 years (Center for Disease Control [CDC], 1995; National Institute of Mental Health [NIMH], 1999), with higher prevalence in the western United

States (American Association of Suicidology [AAS], 1999). Unfortunately, suicide is the extreme end behavior among a continuum of suicidal thoughts and behaviors that occur more frequently. In the CDC's (1991) national survey of 11,631 school-based adolescents, 27.3% had seriously thought about attempting suicide, 16.3% had made specific plans, and 8.3% had attempted suicide within the past year. Thus, youth suicidal behaviors represent a serious public health problem warranting studies that increase our understanding of potential causes and correlates.

Much of the research examining adolescent suicidal behavior has focused on identifying risk factors, such as depression, hopelessness, and drug involvement, and how they relate to self-destructive behaviors (Goldston et al., 1998; Lewinsohn, Rohde, & Seeley, 1993; 1996; Mazza & Reynolds, 1998; Wagner, 1997). Results from these studies and others have been helpful in multiple ways; first, in

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Funding for this project was provided by the National Institute of Nursing Research (R01 NR-MH-03550 and R01 NR-03548), Leona L. Eggert, Principal Investigator. We are grateful to the many young people who participated in this study providing us with invaluable insights; to Brooke Randell, Director of Clinical Programs, who guided study implementation; and to members of the Reconnecting Youth Prevention Research Team for their expertise in data collection and data management.

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trying to facilitate our understanding of the complex relationship between risk factors and adolescent suicidal behavior. Second, these studies have provided important information necessary to the development of adolescent suicide prevention and intervention programs.

Examining risk factors, however, is only one method for increasing our understanding of at-risk youth. Research investigating protective factors, such as social support, has received less attention (Antman, 1987; Eggert, Thompson, Herting & Nicholas, 1995; Lewinsohn et al., 1993; Mazza & Reynolds, 1998). Research by Antman showed that both suicidal and depressed youth endorsed less social support from their family and friendship networks. Likewise, Eggert and colleagues found that when social support was increased in preventive interventions, suicide risk behaviors and levels of depression decreased. These results are consistent with research examining the direct and/or interaction (buffering) effects of social support on depression and/or stress (Cohen & Willis, 1985; Gore & Eckenrode, 1996; Higgins, 1999; Lin, 1986). The impact of social support, whether direct or indirect, continues to be a focus in research examining resiliency and mental health problems in youth (Cicchetti & Lynch, 1993; Luthar, 1991; Overstreet, & Braun, 2000).

Social support, although often cited in the adolescent suicide literature as a single construct (Eggert, Thompson, et al., 1995; Mazza & Reynolds, 1998), is comprised of several different components, such as family support, peer support, and daily activities (Kotila & Lonnqvist, 1988; Lewinsohn et al., 1993). Lewinsohn and colleagues reported that both family support and peer support were related to adolescent attempters; however, when current levels of depression were controlled, only family support remained significant. Mazza and Reynolds, in a longitudinal study of 374 high school adolescents, showed that social support (a combination of family, peer, and school support) was a significant predictor of suicidal ideation 1 year later for females but not for males. Yet the study of daily activities as a means of social support for at-risk youth has received minimal attention (Kotila & Lon-

nqvist, 1988). In addition, examining daily activities provides a construct of concurrent support in contrast to the more frequent approach of measuring social support as a perception over time (Mazza & Reynolds, 1998).

Kotila and Lonnqvist (1988), who sampled 422 adolescent attempters who were hospitalized, examined regular daily activity differences between males and females. They reported that females were more likely to be in school and engage in regular daily activities than males, and males showed a higher rate of unemployment frequently linked to deviant behavior when compared to females. Kotila and Lonnqvist concluded that school attendance provides these youth with a structured program, exposure to peers, and contact with adults who are providing feedback regarding their behavior. Results from this study and others (Clark, Lewinsohn & Hops, 1990; Eggert & Nicholas, 1992) suggest that the type of activity adolescents engage in also play a major role. Studies reveal that engaging in pleasant activities protects against feelings of depression (Clarke et al., 1990), while engaging in risky activities with deviant peers is linked with drug involvement (Eggert & Herting, 1993; Eggert & Nicholas, 1992). In addition, LaGaipa and Wood (1981) reported in their review of empirical work on the friendships of disturbed adolescents that many emotionally disturbed youth have few friends, are withdrawn, and thus are lonely. Therefore, examining regular weekly activities and the different types of activities is an important step in identifying risk versus protective social support factors in youth who are at risk for suicidal behavior and for prevention/intervention programming.

Purpose of Study

The purpose of this study was to examine the association between youth suicide risk and an adolescent's out-of-school weekly activities and if it differed among various groups of suicide-risk youth. Accordingly, in this study we report the weekly activities of suicidal versus nonsuicidal youth. Potential high school dropouts are of special interest because they are more likely to engage in sui-

cide-risk behaviors than typical high school students (CDC, 1994; Thompson & Eggert, 1999). Thus, we compare suicidal and nonsuicidal potential dropouts as well as typical high school students to identify similarities and differences regarding how they spend their non-school time. We focus on two major aims: (1) To examine similarities and differences in weekday and weekend activity involvement among four groups of adolescents (potential dropouts and typical high school students at suicide risk versus potential dropouts and typical students not at suicide risk); and (2) to explore gender specific weekly activity involvement across the four groups.

This descriptive and exploratory work was viewed as an important first step in gaining a better understanding of how weekly, out-of-school activities differ for two groups of suicidal youth—high-risk and typical—versus their nonsuicidal high-risk and typical student counterparts. We expected this study to underscore the link between frequency of involvement in various activities and suicide-risk status among adolescents, thereby laying the groundwork for future research using causal models. We also expected that the findings would provide implications for devising specific interpersonal and recreational preventive interventions for suicide-risk youth, as well as providing implications for identifying and assessing suicide-risk youth.

METHODS

Data for this study came from the ongoing Reconnecting Youth (RY) Prevention Research Program designed to prevent drug abuse, school dropout, and suicidal behaviors (Eggert, Thompson, Herting & Nicholas, 1994; Eggert, Thompson, Herting & Randell, in press). The RY data set affords the study of adolescent problem behaviors among relatively large, randomly selected samples of both high-risk (potential school dropouts) and typical (or low-risk) high school students. In the RY research program, a stratified random sampling procedure was used to select high-risk youth and typical high school students from the populations of seven urban public high schools in the Pacific Northwest.

Data used in this study were collected between June 1995 and June 1999.

Sample

The sample for this study consisted of 1,286 youth in grades 9–12: 688 high-risk for potential school dropout and 598 typical youth. There were approximately an equal number of males and females in the sample, 651 (50.5%) and 635 (49.4%), respectively. As shown in Table 1, both the high-risk and typical youth were heterogeneous with respect to age and grade in school; 81% ranged from 15 to 17 years ($M = 15.74$ years, $SD = 1.39$). Ethnicity of the sample was diverse, with 38% Caucasian, 18.7% Asian American or Pacific Islander, 16.4% African American, 11.7% mixed ethnicity, 3.7% Hispanic or Latino, 3% other, and 1.6% American Indian or Alaska Native; 6.8% did not provide data on ethnicity.

Measurement

The scales used for this study were part of the High School Questionnaire: Profile of Experiences (HSQ; Eggert, Herting, & Thompson, 1989; 1995). The HSQ is designed specifically for high school adolescents and was completed by all participants. It is a broadband measure that taps key psychosocial risk and protective factors such as depression, suicidal behaviors, drug involvement, family factors, personal strengths, and social support including daily activities. A description of the two scales used in this study is detailed below.

Activities Scale. This scale is comprised of two sections tapping typical (A) weekday activities and (B) weekend activities. Each section contains the same 14 items representing specific activities in which adolescents spend their time. In the weekday section, students endorse the activities they engaged in during each afternoon (after school) and evening of the prior week. In contrast, in the weekend section they endorse activities engaged in on Saturday and Sunday mornings, afternoons, and evenings. Thus, the scores for a weekday activity ranged from

TABLE 1
Demographic Characteristics for the Four Groups and the Total Sample

Variable	SR-HR	SR-T	NSR-HR	NSR-T	Total Sample
Sample Size	271	180	417	418	1,286
Males (<i>n</i>)	129	68	256	198	651
Females (<i>n</i>)	142	112	161	220	635
Age					
<i>M</i>	15.64	15.81	15.73	15.77	15.74
<i>SD</i>	1.56	1.57	1.13	1.44	1.39
Race (%)					
Caucasian	27.7	46.2	28.6	58.0	38.0
African American	27.7	6.4	28.4	6.0	16.4
Asian/Pacific Islander	19.1	29.2	13.8	22.9	18.7
Hispanic/Latino	4.5	4.1	4.7	2.7	3.7
Native American	2.5	1.2	3.1	.2	1.6
Mixed Ethnicity	14.9	10.5	17.7	7.2	11.7
Other	3.7	2.3	3.6	3.0	3.0
Missing					6.8
Suicide Attempts in Past Year	46	20	—	—	66
Males	19	4			23
Females	27	16			43

Note. SR-HR = Suicide risk and high risk for school dropout
 SR-T = Suicide risk and typical student
 NSR-HR = Nonsuicide risk and high risk for school dropout
 NSR-T = Nonsuicide risk and typical student

0 to 10 (summing across afternoons and evenings, Monday–Friday); for weekend activities they ranged from 0 to 6 (summing across mornings, afternoons, and evenings during Saturday and Sunday).

For this study, the 14 activities were collapsed into 8 categories using content anal-

ysis. These categories provided a general conceptualization of common adolescent activities during the course of a school year. The categories showed very little overlap with results from an analysis of intercorrelations ranging from $r = .00$ to $.35$. A summary description of these categories follows:

Activity Category	Descriptors of Activities Measured	# of Items
1. Solitary activities	Watching TV alone, time spent alone (other than watching TV), having nothing to do for \geq hr	3
2. Social activities	Time spent visiting/talking with friends for \geq hr, watching TV with others, partying	3
3. Homework	Time spent doing school assignments, homework	1
4. Job	Working at a job outside the home	1
5. Clubs/volunteer work/religious activities	Clubs, youth groups, music lessons, etc; community volunteer work; attending church/temple services	3
6. Athletics	School and/or community sports, practices, games	1
7. Family responsibilities	Chores, yard work, babysitting for siblings	1
8. Family activities	Talking with parents, eating together, going out, etc.	1

Suicide Risk Screen. This scale consists of eight items that examine adolescent suicidal behavior. Item responses are based on 7-point, Likert-type scales, ranging from 0 to 6. The psychometric properties of this scale are good with an internal consistency reliability coefficient calculated at $\alpha = .87$ (Eggert, Thompson, Herting, & Nicholas, 1995; Thompson, Mazza, Herting, & Eggert, 1999). Convergent validity was established in previous research (Eggert, Thompson, & Herting, 1994); suicide-risk behaviors correlated with depression ($r = .43$), hopelessness ($r = .49$), family distress ($r = .37$), school dissatisfaction ($r = .27$), and drug involvement ($r = .39$). The correlation between the Suicide Risk Screen (SRS) and subsequent clinician ratings of suicidal thoughts and intent was .55, establishing concurrent validity (Thompson & Eggert, 1999). The SRS was used in this study to identify students who were at risk for suicide.

Study Design and Sampling Procedures

A 4-group survey design was employed to compare the weekly activities among suicide-risk versus nonsuicide-risk and potential high school dropouts versus typical youth. Study samples were based on a 2-stage screening process.

Stage One. The first stage consisted of identifying students who were potential high school dropouts. Potential high school dropouts were defined by school-related behaviors known to predict future dropout (Eggert, Thompson, Herting, & Nicholas, 1994; Herting, 1990). These students were identified using indicators from school records including either: (1) below expected credits earned for current grade, in top 25th percentile for absences/semester, and a grade point average (GPA) < 2.3 or a precipitous drop > 0.7; or (2) prior high school dropout status, or school referral as being at high risk for potential dropout and meeting one of the criteria in (1) above. Herting (1990) demonstrated construct validity for this sample selection model, finding it accurately predicted low achievement and school dropout over time.

In contrast to potential high school dropouts, "typical" youth were identified by random selection from the total population in each high school excluding special education students and those fitting the definition of high risk (potential dropouts). These recruitment procedures resulted in a high response rate for both typical students (95%) and high-risk youth (83%), and all participants had written and signed consent from their parent/guardian.

Stage Two. The second stage consisted of the SRS to identify students who were at risk for suicidal behavior. Completed SRS questionnaires were scanned into a computer and screened within 2 days of administration. Students were identified as at suicide-risk based on 3 criteria sets: (1) any one of the following: two or more prior suicide attempts, high suicidal ideation, or high depression (1 SD > mean); or (2) any two of the following: moderate suicidal ideation, indirect/direct threats of suicide, a prior suicide attempt, moderate depression, or drug involvement; or (3) any one of the criteria other than drug involvement in (2) above.

Group Composition. There were four groups of interest in this study based on the combination of school achievement status (high-risk potential dropouts versus typical youth) and suicide-risk status (at-risk versus not at-risk). The four groups were as follows:

1. High-risk potential dropouts who screened in at suicide risk [SR-HR], $n = 271$, 39.4% of high-risk group.
2. Typical high school students who screened in at suicide risk [SR-T], $n = 180$, 30.1% of typical group.
3. High-risk potential dropouts not at suicide risk [NSR-HR], $n = 417$, 60.6% of high-risk group.
4. Typical students not at suicide risk [NSR-T], $n = 418$, 69.9% of typical group.

It should be noted that "suicide risk" is used to describe the group and to be consistent with the other group descriptions. It should not be interpreted that "suicide risk" implies

that these adolescents are going to commit suicide.

Data Analysis

Data analyses were conducted using the Statistical Package of the Social Sciences (SPSS) version 7.5 (SPSS, 1996). One way ANOVAs with post-hoc comparisons (Scheffe) were used to examine group differences on the dependent variables, the eight categories of activities, and were calculated separately for weekday and weekend involvement. The same procedures were used to examine male and female activity involvement. The Type I error rate was adjusted conservatively to $\alpha = .006$ (.05/8) due to the number of ANOVAs being conducted, and rounded off to .005 for simplicity; post hoc comparisons were also examined at a .005 level. Effect-sizes for the ANOVAs were calculated using η^2 with the effect-size statistic represented by f , according to Cohen (Cohen, 1977).

RESULTS

Demographic Characteristics of Participants

The demographic characteristics of the sample are presented in Table 1. As expected, there were significantly more students in the two nonsuicide-risk groups (NSR-HR & NSR-T) than in the two suicide-risk groups (SR-HR & SR-T), $\chi^2(3, N = 1,286) = 127.54, p < .001$. There were no age differences among the four groups, $F(3, 1270) = 1.27, p = \text{ns}$. African American students were overrepresented in the high-risk potential dropout groups compared to their overall representation in the total sample. The proportion of African American students in the potential dropout groups were significantly higher than those in the typical student groups, $\chi^2(3, N = 221) = 112.45, p < .001$.

Suicide Risk. The proportion of participants in this study who were identified as at suicide risk was substantial, 35.1% (451), with potential dropouts (39.4%) more likely than typical students (30.1%) to be at suicide

risk, $\chi^2(1, N = 451) = 18.36, p < .001$. This result was a function of the sample of interest, high-risk potential dropouts known to be at high-risk for suicidal behaviors. Females were significantly more likely to be in the suicide-risk groups than were males, $\chi^2(1, N = 451) = 4.23, p = .039$. Sixty-six (5.2%) of the total study participants reported making at least one suicide attempt in the past year, with significantly more females attempting suicide than males (43 vs. 23, respectively), $\chi^2(1, N = 66) = 6.06, p = .014$. The mean age of suicide-risk teens was the same as for the nonsuicidal teens (15.71 versus 15.75), $t(1,272) = .44, p = \text{ns}$. Within the two groups at risk for suicidal behavior, none of the suicide-risk behaviors showed significant differences.

School Achievement. High-risk and typical youth were distinctly different in their school experiences. As expected by the sample selection definition, high-risk youth as compared to typical youth had lower grades (1.45 GPA vs. 3.12 GPA on a 0.00 to 4.00 scale), $t(1,081) = 15.37, p < .001$, fewer earned credits/semester (1.72 vs. 3.45), $t(1,081) = 16.24, p < .001$, and greater class absences (18.89 vs. 5.65 days/semester), $t(1,067) = 15.71, p < .001$.

Activity Involvement during Weekdays, Monday-Friday

The results of the weekday activity involvement for the suicide-risk and nonsuicide-risk adolescents are presented in Table 2 and Figure 1. Seven of the eight activity categories differentiated the four groups, with clubs/volunteering/religious activities being the one exception. Compared to the nonsuicidal-typical students, the SR-HR and SR-T groups were more likely to engage in solitary activities, $t(620) = 6.48, p < .001$ and $t(546) = 6.63, p < .001$, respectively. Translating the result into activity measurements, this finding shows that suicide-risk youth, regardless of dropout risk, spent 4 of 10 afternoons/evenings alone or with nothing to do compared to 3 of 10 afternoons/evenings for typical nonsuicidal youth. Group differences were also found regarding social involvement,

TABLE 2
Weekday Activity Mean Scores for the Four Groups of Adolescents (N = 1,286)

Activity Categories	SR-HR n = 270	SR-T n = 180	NSR-HR n = 417	NSR-T n = 417	F-test ^a	f ^b	Significant Comparisons ^c
Solitary Activities							
M	3.96	4.08	3.39	2.88	19.76**	.23	1, 2, 3 > 4
SD	2.32	2.14	2.10	1.84			1, 2 > 3
Social Activities							
M	4.41	3.69	4.65	3.35	29.49**	.28	1, 3 > 2, 4
SD	2.18	1.98	2.16	1.80			
Homework							
M	5.05	6.03	5.16	6.49	19.23**	.22	4 > 1, 3
SD	2.90	3.03	2.78	2.78			2 > 1
Job							
M	2.84	2.62	2.99	1.96	9.34**	.15	1, 3 > 4
SD	3.06	3.02	3.07	2.46			
Clubs/Volunteer Work/ Religious Activities							
M	1.07	1.09	1.11	1.05	.08**		
SD	1.49	1.49	1.70	1.30			
Athletics							
M	2.75	3.41	3.45	3.80	5.11*	.11	4 > 1
SD	3.19	3.29	3.49	3.18			
Family Responsibilities							
M	4.73	5.18	5.06	4.34	4.36*	.10	
SD	3.33	3.46	3.23	3.07			
Family Activities							
M	4.05	4.74	4.79	5.21	6.69**	.13	4 > 1
SD	3.07	3.18	3.21	3.12			

Note. Scale scores for each category of weekday activities ranged from 0 to 10.

^aF tests were conducted with degrees of freedom for each category.

^bf represents the effect size in relation to the corresponding F reported.

^cstatistic is the Scheffe post-hoc comparisons were used.

SR-HR = Suicide risk and high risk for school dropout

SR-T = Suicide risk and typical Student

NSR-HR = Nonsuicide risk and high risk for school dropout

NSR-T = Nonsuicide risk and typical student

* $p < .005$, ** $p < .001$

$F(3, 1130) = 29.49, p < .001, f = .28$, with SR-HR and NSR-HR showing a higher frequency in spending time with friends or partying than NSR-T and SR-T students. Group differences were also found with respect to homework; SR-HR and NSR-HR engaged in fewer afternoons and evenings doing homework than did the NSR-T students, $t(621) = 6.14, p < .001$ and $t(763) = 6.59, p < .001$, respectively. Employment, athletics, family responsibilities, and family activities also showed group difference; how-

ever, the effect-sizes for these comparisons were weak, with f ranging from .10 to .13.

Gender Specific Activities. These results were consistent with the total sample findings; that is, males and females showed group differences in the same four categories: solitary activities, social activities, homework, and job-related activities. Specifically, males and females in the two suicide-risk groups (SR-HR & SR-T) engaged in more solitary activities compared to the same sex non-suicidal typical students. Similar to the total

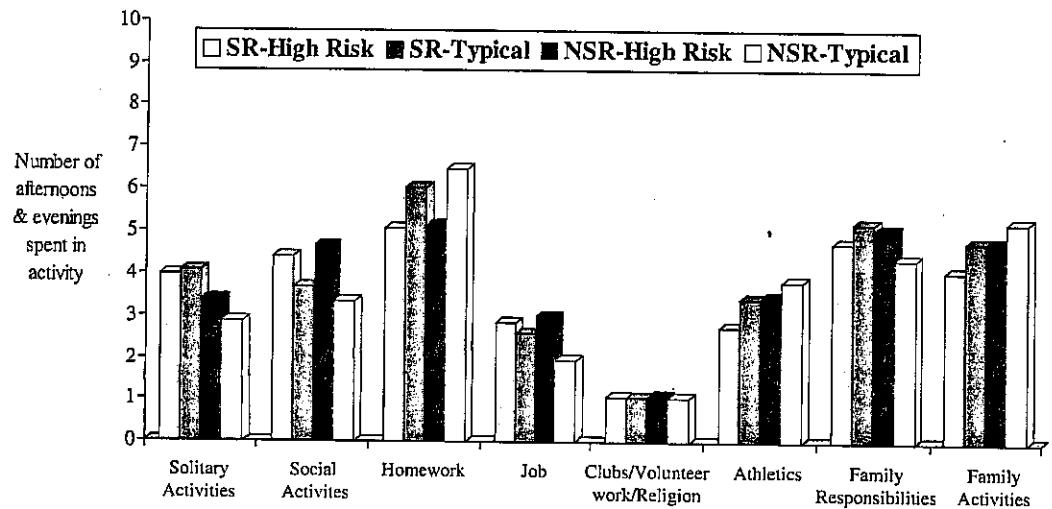


Figure 1. Time spent in activities, Monday–Friday: Afternoons, after school, and evenings

sample, suicidal and nonsuicidal potential dropouts—males and females—engaged more frequently in social activities and endorsed fewer afternoon/evenings on homework compared to the suicidal and nonsuicidal typical students. Additionally, males across the four groups differed on family activities, $F(3, 597) = 6.05, p < .001, f = .18$, while females differed in time spent in athletic activities, $F(3, 566) = 5.99, p < .001, f = .18$. That is, females in the typical student groups (SR-T & NSR-T) were more likely to engage in athletic events than were the potential dropout females (both SR-HR & NSR-HR). Among males, the nonsuicidal typical students (NSR-T) were more likely to participate in family activities than were the potential dropouts at suicide-risk (SR-HR), $t(303) = 4.27, p < .001$.

Weekend Activities

The results of the weekend activities endorsed by the participants are presented in Table 3 and Figure 2. In contrast to the weekday activities, only three of the eight categories showed significant group differences: solitary activities, social activities, and homework. Similar to weekday results, adolescents in both suicide-risk groups (SR-HR & SR-T) endorsed engaging in solitary

activities more frequently than did the typical nonsuicidal students (NSR-T), $t(610) = 4.56, p < .001$ and $t(543) = 4.02, p < .001$, respectively. Both groups of youth at risk for school dropout (SR-HR & NSR-HR) were more likely to engage in social activities than were nonsuicidal typical students (NSR-T), $t(601) = 4.53, p < .001$ and $t(722) = 5.90, p < .001$, respectively. Not surprisingly, nonsuicidal typical students were more likely to do homework over the weekend than were the nonsuicidal potential dropouts (NSR-HR).

Gender Specific Activities. Within gender analyses for weekend activities showed minimal group differences, indicating that males and females across the four groups were more alike than different. Across groups, males differed in the frequency of time spent in solitary activities, $F(3, 576) = 5.11, p < .005, f = .16$, and in social activities, $F(3, 557) = 6.58, p < .001, f = .19$. Both the suicide-risk and nonsuicidal potential dropouts (SR-HR & NSR-HR) engaged in more social activities compared to the nonsuicidal typical male students (NSR-T). Across groups, females differed in three of the activity categories—that is, solitary, $F(3, 554) = 5.93, p < .001, f = .18$; social, $F(3, 540) = 6.75, p < .001, f = .19$; and homework activities, $F(3, 543) = 5.02, p < .005, f = .17$. Post-

TABLE 3
Weekend Activity Mean Scores for the Four Groups of Adolescents (N = 1,286)

Activity Categories	SR-HR n = 270	SR-T n = 180	NSR-HR n = 417	NSR-T n = 417	F-test ^a	f ^b	Significant Comparisons ^c
Solitary Activities							
M	1.80	1.78	1.49	1.33	9.29**	.16	1, 2, > 4
SD	1.40	1.30	1.21	1.14			
Social Activities							
M	2.44	2.07	2.50	2.00	13.64**	.19	3 > 2, 4 1 > 4
SD	1.34	1.20	1.26	1.02			
Homework							
M	1.46	1.88	1.43	1.83	7.94**	.15	4 > 3
SD	1.44	1.46	1.43	1.25			
Job							
M	1.64	1.72	1.67	1.44	1.68**		
SD	1.82	1.79	1.81	1.53			
Clubs/Volunteer Work/ Religious Activities							
M	.71	.60	.68	.68	.41**		
SD	1.02	1.00	.98	.90			
Athletics							
M	1.06	1.23	1.52	1.37	3.92**		
SD	1.61	1.59	1.80	1.53			
Family Responsibilities							
M	2.38	2.43	2.33	2.24	.57**		
SD	1.91	1.86	1.81	1.56			
Family Activities							
M	2.07	2.26	2.15	2.23	.56**		
SD	1.64	1.70	1.68	1.70			

Note. Weekend scale scores for activities ranged from 0 to 6.

^aF tests were conducted with degrees of freedom for each category.

^bf represents the effect size in relation to the corresponding F reported.

^cstatistic is the Scheffe post-hoc comparisons were used.

SR-HR = Suicide risk and high risk for school dropout

SR-T = Suicide risk and typical student

NSR-HR = Nonsuicide risk and high risk for school dropout

NSR-T = Nonsuicide risk and typical student

*p < .005, **p < .001

hoc comparisons revealed that SR-HR females were more likely than NSR-T females to engage in solitary activities such as being alone, watching TV alone, or simply having nothing to do, $t(313) = 4.90, p < .001$.

In-Depth Analysis of Solitary and Social Activities

Further in-depth analyses were conducted on the solitary and social activity categories because of the consistent differences

found across the four groups. The items comprising each of these two categories were analyzed separately.

Solitary Activities. All three of the separate items comprising the category of solitary activities during the weekday differed significantly across the four groups: watching TV alone, $F(3, 1193) = 16.05, p < .001, f = .20$; being alone, $F(3, 1185) = 14.07, p < .001, f = .19$; and having nothing to do, $F(3, 1196) = 15.59, p < .001, f = .20$. Adolescents who were at risk for either suicide or school dropout

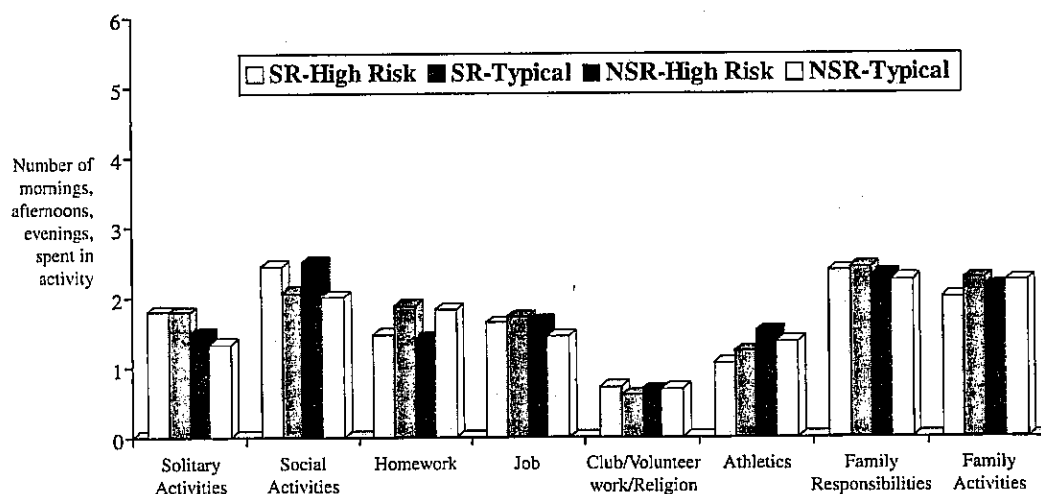


Figure 2. Time spent in activities during the weekend: Mornings, afternoons, and evenings

(SR-HR, SR-T, & NSR-HR) watched more TV alone than did their nonrisk peers (NSR-T). Similarly, youth at risk for school dropout or suicide reported having nothing to do more frequently than did their nonsuicidal typical peers.

Social Activities. All three social activity items during the weekday differentiated the four groups: watching TV with others, $F(3, 1182) = 4.29, p < .01, f = .11$; talking to others for more than an hour, $F(3, 1188) = 14.59, p < .001, f = .19$; and partying, $F(3, 1177) = 34.78, p < .001, f = .30$. Post-hoc comparisons revealed that the nonsuicidal high-risk potential dropouts (NSR-HR) were more likely to watch TV with others than were the nonsuicidal typical students. Youth at risk for school dropout (SR-HR & NSR-HR) were significantly more likely to interact with others for more than an hour compared to typical students—both suicidal and nonsuicidal (SR-T & NSR-T). Similarly, the activity of partying strongly differentiated the potential dropouts (SR-HR & NSR-HR) from the typical youth (SR-T & NSR-T).

DISCUSSION

In this study, we compared the typical weekday and weekend activity involvement

among four groups of adolescents: (1) those at suicide risk and high-risk for school dropout, (2) suicide-risk typical students, (3) nonsuicide-risk but at high-risk for school dropout, and (4) nonsuicide-risk typical students. The findings revealed that suicide-risk adolescents and high-risk potential dropouts have some important activity involvement differences and similarities compared to their non-risk peers, the typical students in high school. In general, adolescents who were at risk for suicidal behavior were more likely to engage in solitary activities compared to nonsuicidal peers. In contrast, adolescents who were at high-risk for school dropout, regardless of whether or not they were at risk for suicidal behavior, engaged in more social activities and less homework compared to typical high school students.

Somewhat surprising was that the pattern of activities differed less among the four groups on weekends than it did during weekdays. For example, Figure 2 illustrates that students, regardless of group, engaged equally in family responsibilities and family activities. This finding is consistent with identifying family as an important factor for at-risk as well as typical students (Eggert et al., in press; Thompson et al., 1999). Thompson and colleagues showed that family support was a protective factor for youth at-risk

for school dropout, counteracting suicidal behaviors and depression. It was expected that time spent in family activities would be higher among the typical students, as was found by Powell-Cope and Eggert (1994), which was supported for weekdays, but not weekends. This suggests that the at-risk adolescents were integrated, at least as much as typical adolescents, into family activities and responsibilities during the weekend, if not during the weekdays. Thus, targeting family support regarding activities and responsibilities during weekdays may be an important factor to consider in suicide prevention programs.

The fact that youth at risk for suicidal behavior engaged in more solitary activities than did their non-risk peers is consistent with previous research on adolescent mental health (Antman, 1987; Nakamura, McLeod, & McDermott, 1994). This finding is particularly important because engagement in solitary activities is often difficult to observe, especially if it takes place at home. The items that comprised this scale examined isolation, watching TV alone, or having nothing to do—activities known to be important risk factors for adolescent suicidal behaviors (CDC, 1995; Lewinsohn et al., 1993). Such solitary activities may lead to depression and hopelessness, which are significant predictors of adolescent suicidal behaviors (Cole, 1989; Lewinsohn et al., 1996; Mazza & Reynolds, 1998; Smith & Crawford, 1986; Thompson et al., 1999) and/or indicators of other mental health needs. A second important perspective is that these activities may result from depression or hopelessness, indicating mental health difficulties in the past and possible warning signs for future mental health problems.

The difference between youth at risk for suicidal behavior and non-risk peers on solitary activities, 3 versus 4 afternoons/evenings, deserves further discussion. On the surface, this difference does not appear to be relevant; however, at-risk students were engaged in solitary activities 33% more than their non-risk peers. The effect-size, which is a better indication of meaningful differences

with a large sample size, was moderate (Cohen, 1977), suggesting that this difference may be clinically important. Lastly, another way to view this difference is cumulative over 1 month, in which case youth at risk for suicidal behavior spent almost one more full week engaged in solitary activities during the weekday afternoons/evenings than non-risk peers. When viewed over a month, this difference is substantial and becomes a risk factor that deserves further investigation among at-risk youth. This finding is viewed as clinically significant and warrants attention from mental health professionals.

In a closer examination of each item that comprised the solitary activity category, follow-up analyses showed that most solitary activities involved being alone and having nothing to do—for both males and females. Being alone is particularly troublesome because other people are not available or around if a youth decides to attempt suicide, thus restricting the possibility of rescue. We know from prior studies that adolescents die from suicide because they underestimate the lethality of their attempt and their possibility of being rescued (Shafii, Steltz-Lenarsky, Derrick, Beckner, & Whittinghill, 1988). The other activity or lack thereof, is having nothing to do, which leads to boredom. As noted, boredom has been linked with greater feelings of depression and hopelessness. Nakamura and colleagues (1994) found that most suicide-risk youth attempted suicide during the week at home after school when they were alone. Taken together, this propensity for engaging in solitary activities by the suicide-risk youth in this study is congruent with prior research on depressed youth (Antman, 1987) and studies of the friendships of disturbed adolescents (LaGaipa & Wood, 1981). Implied is the need for clinicians and school personnel to conduct a more comprehensive assessment of how much time at-risk youth are spending alone and/or with nothing to do, especially during weekdays at home.

In contrast to the solitary findings, youth at risk for suicidal behavior who were also at high-risk for school dropout showed significantly higher levels of social activity

compared to the typical students, as illustrated in Figure 1. Thus, youth in "double jeopardy" (at risk for both suicidal behavior and school dropout) frequently may be overlooked or missed regarding suicidal behavior because they may be perceived as socially active and well connected to friends. Similarly, Luthar (1991) found that adolescents from high stressed backgrounds who were identified as "resilient," defined by higher levels of intellectual competence and social skills, were significantly more depressed and anxious than competent peers in low stress backgrounds. The findings from this study and Luthar suggest that reliance on outwardly visible criteria to identify youth at risk for suicidal behavior and mental health problems may be misleading, and therefore *not* an effective strategy by itself. These results do not negate the clinical importance of outward signs, such as sudden withdrawal and suicidal gestures, but rather highlight that suicide prevention programs that depend on external behaviors as their primary methodology for identifying at-risk students may miss a significant proportion of them. Conversely, this study supports the assumption that identifying adolescents who are at risk for suicidal behavior needs to be through a proactive approach that includes asking direct questions related to suicidal thoughts and behaviors (Eggert, Thompson, & Herting, 1994; Mazza, 1997; Reynolds, 1988; 1991; Reynolds & Mazza, 1999).

In addition to being frequently overlooked, SR-HR youth may be at higher risk for suicidal behaviors because of their frequent involvement in partying. Such youth have linked their partying activities with heavy and dangerous drug involvement, which result in greater feelings of depression and remorse (Eggert & Nicholas, 1992). Research examining psychological autopsies of adolescents and those who have attempted suicide consistently report high levels of drug and alcohol involvement (Brent 1995; Brent et al., 1994; Shafii et al., 1988). Partying, coupled with suicidal thoughts and intent, is a potentially lethal combination, emphasizing

the need to identify adolescents at risk for suicidal behavior, and in particular those who are also at risk for school dropout.

Somewhat surprisingly, males and females had similar activity involvement both during weekdays and on weekends. Because females attempt suicide more frequently than their male counterparts (AAS, 1999; Reynolds & Mazza, 1994), one might have expected differences in how they spend their time outside of school hours. However, this was not the case; solitary activities appeared to be the primary category that separated at-risk from nonsuicide-risk males and females, regardless of their potential dropout status. This finding suggests that preventive intervention strategies that focus on the reduction of solitary activities may be an effective strategy for both sexes. These results are somewhat different from what Kotila and Lonqvist (1988) reported (that female attempters tended to be more engaged in school than males); however, this difference may be due to the two different populations being studied, school-based versus clinical, respectively. Gender similarities were also found in the current study for students identified as high-risk for school dropout. In general, these youth reported more social participation and less homework activity than did the typical students. These findings are consistent with previous research with potential school dropouts, revealing that dropout-risk students tend to prioritize their friendships and social activities above their homework (Eggert & Nicholas, 1992; Jordan, McPartland & Lara, 1999).

Implications

The results of this study have important implications for adolescent mental health workers, school counselors and psychologists, prevention specialists, and those trying to gain a better understanding of adolescent suicidal behavior. Study findings showed that weekday activities were the most discriminating times when youth at risk for suicidal be-

havior frequently engaged in more solitary activities. This suggests that clinicians or school personnel working with adolescents at risk for suicidal behavior need to implement strategies that keep these at-risk youth involved with others and engaged in fun activities during the weekdays and weekends in an effort to combat boredom and being alone. These activities should also be drug-free, given that drugs are a significant risk factor for adolescents who engage in suicidal behavior (Brent, 1995; Reynolds, 1991; Shaffer et al., 1996; Thompson, Moody, & Eggert, 1994). Potential dropouts, especially, also may benefit from structured after school programs that include help with homework along with fun activities.

A second implication is that suicide prevention programs need to adopt proactive means for identifying suicidal youth. In the present study, youth who spent their time partying and frequently talking to others were equally at risk for suicidal behavior as were those who tended to be alone. Thus, suicide prevention programs that depend on teacher observation or peer-nomination based on observable signs to identify youth at risk for suicidal behavior are problematic because they may miss a significant proportion of them. Given the potential lethal outcome of not identifying these students, the direct approach of asking straightforward questions regarding suicide and suicidal behavior needs to be employed by school personnel and mental health workers who are involved with at-risk youth.

The third implication is focused on gender differences, or the lack thereof. From the findings of this study, at-risk males and females tend to show similar activity profiles during the weekdays as well as the weekends. Therefore, strategies to change weekly activities as a means for reducing suicidal behavior should work equally well for both genders. In addition, separate suicide prevention programs do not appear necessary from the standpoint of weekly activities. However, any strategies that are implemented to help reduce suicidal behavior need to be monitored,

including collecting data to show their efficacy, to make sure they are not causing more harm than before.

The final implication is for future research in the area of social support. This study was designed to be an initial step in examining the different activities that adolescents at risk for suicidal behavior and those at risk for school dropout engage in during a typical week. Further research exploration using causal models to examine the direct effects (Cohen & Willis, 1985, Lin, 1986) and buffering effects (Gore & Eckenrode, 1996; Higgins, 1999) of different types of daily activities is needed for the development of suicide prevention and intervention programs. These models need to include other mental health measures, such as depression, which is strongly related to adolescent suicidal behavior (Reynolds & Mazza, 1994). In addition, these models need to account for individual and environmental characteristics and examine bi-directional relationships, such as depression and social activities (i.e., students who are too depressed to take advantage of social activities versus a reduction in social activities leads to depression), to determine the model of best fit. This type of future research is important and the results from this study provide a good starting point for better understanding the complex relationships of social support in adolescents.

Limitations

There are several noteworthy limitations specific to this study. First is the measurement of the duration of each weekly activity in which adolescents participated. For example, adolescents who spent as little as 10 minutes to 2 hours per afternoon or evening on the same activity received identical scores as the response set asked them to endorse time spent in terms of afternoons after school, evenings, as well as mornings on the weekend. This was true for most items with the exception of some that called for "more than one

hour." Thus, caution should be exercised in generalizing the present study results, and further research should examine duration of activities in terms of hours/week. Despite this limitation, the present study revealed important similarities and differences with the broader measure of time spent in activities during the weekdays and on weekends.

The data were collected with a self-report questionnaire. Alternatively, obtaining data by other means, such as paging youth at frequent, random times over representative weeks to ask what they are currently engaged in, would enhance the validity of information. However, in assessing adolescents and their interpersonal life, research has frequently used self-report methods as an effective and valid means for obtaining data (Mazza, 2000; Reynolds & Mazza, 1999; Spirito et al., 1993). Further, the measure of weekly activities was limited to 14 selected activities (with space for youth to write in other activities, which few did). Although diverse, future studies would benefit from other more specific activities, especially related to time spent with friends. For example, differentiating talking on the phone with a friend from dating would be important because of its salience for adolescents.

Last, the criterion used to place adolescents in the suicide-risk group was broadly defined. This would account for the large percentage of youth in the total sample that screened in as at risk for suicidal behaviors. However, the purpose in collecting the data was to identify youth along a full continuum of suicide-risk behaviors for prevention purposes, including known risk factors such as depression and drug involvement, and thus, using a broad criteria to capture borderline cases was viewed as a conservative and appropriate approach. However, the suicide-risk group may be comprised more of mild and moderate at-risk youth rather than high-risk youth. This may explain some of the profile similarities across groups. Further research examining the highest-risk groups, such as suicide attempters within the past 3 months, may show different results.

Conclusion

Despite these limitations, this study was descriptive in nature, providing a preliminary examination of weekday and weekend activity profile differences among four groups of adolescents: three at risk for suicidal behaviors, school dropout, or both, and the fourth a non-risk comparison group. Analyses conducted were consistent with the design and purpose of the study and findings should be viewed as a starting point for future research that includes multiple regression and structural equation modeling with longitudinal data. The present study sets the stage for examining direct and indirect relationships of specific activities, such as solitary and social activities and engagement in homework and family activities, on levels of suicidal behaviors. Generalizing the current study findings beyond the intended exploratory scope is not recommended without further research.

This study showed that weekday and weekend involvement for adolescents who are at risk for suicidal behavior and at risk for school dropout are different compared to their non-risk peers. For youth at risk for suicidal behavior, they tend to engage in more solitary behaviors than do nonsuicide-risk peers, such as being alone, which is troublesome if the youth attempts suicide. For adolescents at risk for school dropout, they are inclined to engage more in social activities and less in homework compared to non-risk school dropout youth, which may lead to frustration and feelings of hopelessness regarding future employment and life choices. Youth at risk for both suicidal behavior and school dropout are of particular concern because they may be frequently missed regarding mental health issues due to being on the periphery of the school system and their frequent involvement in social activities, such as partying. Within gender analyses showed that male and female profile differences resulted from the same activity categories, meaning that prevention programming should focus on adolescents in general rather than gender spe-

cific programs. Weekday activity involvement showed more differences than weekend activity involvement, and male and female weekend activities were very similar.

Understanding adolescents who engage in suicidal behaviors remains the overall goal, and information from this study com-

bined with findings from future research are steps to accomplishing this goal. It is our hope that with increased understanding of at-risk youth, strategies for reducing and preventing adolescent suicidal behaviors can be developed.

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Manuscript Received: February 11, 2000
Revision Accepted: October 3, 2000