Published in final edited form as:

Fam Community Health. 2012 ; 35(3): 225–235. doi:10.1097/FCH.0b013e318250bcf9.

Promoting CARE:

Including Parents in Youth Suicide Prevention

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Abstract

This study evaluated the effectiveness of augmenting a youth suicide-preventive intervention with a brief, home-based parent program. A total of 615 high school youth and their parents participated. Three suicide prevention protocols, a youth intervention, a parent intervention, and a combination of youth and parent intervention, were compared with an “intervention as usual” (IAU) group. All groups experienced a decline in risk factors and an increase in protective factors during the intervention period, and sustained these improvements over 15 months. Results reveal that the youth intervention and combined youth and parent intervention produced significantly greater reductions in suicide risk factors and increases in protective factors than IAU comparison group.

Keywords

adolescent suicide risk; brief intervention; family support; indicated suicide prevention

Youth suicide is an urgent and complex challenge facing prevention researchers today. In the most recent national Youth Risk Behavior Surveillance, 28.5% of youth reported feeling so sad and hopeless that it interfered with their daily activities, 16.9% seriously considered suicide, and 8.4% actually attempted suicide.¹ These rates are consistent with those reported for other high school samples.^{2–4} Suicide and suicide risk behaviors such as ideation, planning, and attempts increase dramatically at adolescence and continue to rise well into young adulthood. Despite high levels of public concern, as researchers, we lack knowledge of the most feasible and effective ways to address this alarming trend. Relatively few studies have examined suicide prevention program outcomes—fewer still have included research evaluations for those youth who already show signs of suicide risk.⁵

There are important challenges to conducting suicide prevention research. The goal of prevention is to address early stages of the suicide risk process, before suicide-related behaviors become dangerous and entrenched. Such behaviors not only increase risk of suicide but also cause substantial damage to development in their own right.^{6,7} Suicide prevention research involves intervening early, when levels of problem behavior are still low, but nonetheless doing so with measurable success; it requires protocols for responding to suicide risk as it is assessed, as well as a research design that can accommodate a comparison group that must also be treated for their risk.^{5,8,9} Finally, prevention programs

may demand that settings such as schools and families provide support and care for vulnerable youth; however, those involved may feel unprepared and therefore reluctant to take on such tasks.

BACKGROUND

Along with a sound theoretical framework that guides behavior change, research-based prevention relies upon investigations of precursor behaviors; in this case, behaviors that are related to adolescent suicide. Fortunately, for the field of prevention, the last 2 decades have witnessed a surge in longitudinal studies identifying correlates and predictors of suicide risk.

Individual risk factors

Suicide behaviors include ideation, threats, plans, and attempts. These behaviors in adolescence, especially attempts, are important predictors of new and continued suicide attempts.^{4,5,7} While a first suicide attempt may be fatal, it is likely that attempts will occur more than once and gradually escalate, sometimes becoming entrenched as an increasingly dangerous stress response and coping mechanism.⁶ Depression, anxiety, and anger are also key risk factors for suicide,^{10,11} with a tendency to co-occur with each other and with suicide behavior. Furthermore, high substance use is an important correlate of suicide behavior,^{11,12} increasing the likelihood of depression, suicide ideation, and attempts, and possibly exacerbating the relationships between them.^{13,14}

Coping difficulties

Youth identified as at risk of suicide often report more stress and greater effects of stress than their nonsuicidal peers.^{14,15} They report experiencing less personal competence and a tendency to overestimate the controllability of experienced stressors.¹⁵ Studies have shown that youth with higher levels of suicide behavior are more reluctant to seek help or accept help¹⁶ and tend to be less compliant with treatment.

Social context: A source of risk and protection

Family factors—Family support at adolescence, commonly conceptualized as parental involvement, connection,¹⁷ warmth and support,¹⁸ and time spent together,^{3,17} has been shown to be “protective” for the risk of suicide and co-occurring problem behaviors. Conversely, family conflict, parental mismanagement, and disengagement are implicated in increased risk of youth suicide,^{4,14} with conflicts with parents reported as a precipitating event for suicide behavior.⁸ Thus, family-based interventions designed to reduce discord and increase support and empathy for youth are relevant and important for reducing suicide risk.

School factors—Schools can play an important role in youth suicide prevention.^{5,19} Just as school problems are a source of stress and a risk factor for suicide,²⁰ school connectedness and success are a source of protection.³ Although general screening at school for suicide risk is considered safe and appropriate,^{16,21} there is, sometimes, resistance in schools to implementing suicide prevention programs; such resistance seems to be related to feeling unprepared rather than unconcerned.²² Schools are an important source of access to youth and identification of their suicide risk, as well as a source of increased support and ongoing surveillance, but staff may benefit from training and assistance to increase their comfort and feelings of competence working with suicidal youth.

Intervention

Findings from the background studies strongly indicate that youth suicide prevention should address multiple, co-occurring problem behaviors and include the social contexts, that is,

families and schools, that provide both risk and protection from suicide. This article reports on such a prevention program: Promoting CARE. In this program, an indicated evidence-based suicide prevention program for youth, Counselors Care, Assess, Respond, Empower (acronym C-CARE),²³ is augmented by a brief parent intervention, Parents CARE (P-CARE).

The C-CARE intervention—C-CARE is a computerized assessment and intervention for youth that addresses multiple, co-occurring risk factors related to youth suicide^{24,25} and has been shown to reduce suicidal behaviors, emotional distress, and alcohol and drug use.^{26,27} It uses social learning, motivation, social support, and skills-acquisition theories to promote behavioral change relative to the targeted risk factors for youth suicide.²⁴ This 2-hour individual intervention includes an interactive assessment and motivational counseling to change behavior, targeting risk factors as well as individual and social resources.

The P-CARE intervention—P-CARE is a suicide prevention “first aid” and skills-training intervention for parents, designed to complement and augment the behavior change that is targeted in C-CARE by targeting family processes implicated in youth suicide risk (eg, conflict, lack of support). As with C-CARE, P-CARE is guided by social learning theory and encompasses motivation, support, and skills-learning components. Parents learn to reduce conflict and increase support and listening, as well as to coach teens in acquiring self-management skills. The first parent session involves an individualized assessment of the youth’s specific risks, tailored information about suicide prevention, and strategies to communicate support. The second session involves mood management and problem solving.

THE PROMOTING CARE STUDY

The central aim of the study was to evaluate the efficacy of the suicide prevention protocols that comprise Promoting CARE—the youth-only intervention (C-CARE only), the parent-only intervention (P-CARE only), and the combined youth and parent intervention (C + P CARE), compared with an intervention as usual (IAU) comparison group. Youth in the IAU comparison group received a brief screening interview only, as did youth in the parent-only group (hence, “parent only” as youth in P-CARE—only received the brief screening interview but not the C-CARE intervention). Major outcomes of interest were reducing suicide risk behaviors and the related risk factors of depression, anger, and drug involvement, as well as increasing coping and connection to family. The expectation was that the combined C + P-CARE intervention would result in greater changes in outcomes than the other interventions and that each of the 3 interventions would be more effective than IAU.

Procedures

Randomly selected teens in each of 20 public high schools—14 traditional and 6 alternative (mean size = 1293 students in traditional schools)—in 7 greater Seattle area school districts were recruited to participate in a survey to examine “experiences and stressors” in high school and for a possible selection in a brief intervention study. Verbal and written informed assent/consent was obtained from youth and parent through approved institutional review board protocols. All participating youth completed the High School Questionnaire: Profile of Experiences (HSQ),²⁸ which included key study variables and the embedded Suicide Risk Screen (SRS).^{24,29} The single items that meet criteria for suicide risk status are suicide attempts and elevated suicide ideation or depression. Otherwise, 2 criteria must be met and include moderate depression, moderate suicide ideation/threats, and/or alcohol and drug use in conjunction with suicide risk. Reliability and validity of this case-finding model are

documented.^{24,29} Youths identified as not currently at risk for suicide (with the SRS) exited the study at this point.

Because study participation was based on meeting suicide vulnerability (SRS) screening criteria, all participating youth received some form of assessment/intervention, either the actual youth intervention C-CARE (in both C + P-CARE condition and C-CARE conditions) or the brief youth interview (youth in P-CARE and IAU). All parents received a phone call after the youth interview (brief interview or C-CARE) that included some coaching on talking with their teen and on accessing resources. All youth were connected with a school nurse or counselor after the interview, who also received coaching on providing support to vulnerable youth. Table 1 displays study conditions by prevention protocol.

At each school, youth were randomly assigned to 1 of the 4 study options. Youth assigned to C-CARE-only and C + P-CARE received the C-CARE intervention that is detailed earlier and in Table 1. Youth in P-CARE-only and IAU participated in the brief (15-to 30-minute) assessment interview, the 22-item Screen for Youth Suicide Risk (SYSR),³⁰ followed by connection to resources. Parents of youth assigned to P-CARE-only or C + P-CARE completed 2 home visits and a follow-up parent booster telephone call at 2.5 months.

Participants

Acceptance rates—Youth and parents were invited to the study separately. Acceptance rates for both are reported in detail in a previously published article.³¹

Eligible participants—Of the 2160 youth who completed the first questionnaire, 615 (28%) met SRS criteria. These youth represent the pool of youth eligible for study participation and were assigned at random to study condition: 143 to the IAU condition, 153 to C-CARE-only, 155 to P-CARE-only, and 164 to C + P-CARE. Demographic information, obtained both from the HSQ and from demographic questions asked of parents, is presented in the Results section.

Subject retention—Of the randomly assigned youth, 99% completed the first C-CARE intervention session and 88% completed both C-CARE sessions. Of the 319 households assigned to P-CARE, 91% completed the first home visit and 81.5% completed both home visits. Youth study retention was 98% at time 2 (T_2) and 87% by time 5 (T_5) (15 months postbaseline), high rates that match those in our previous studies with youth.³¹

Study design

A 4-group repeated-measures randomized design was used to evaluate the Promoting CARE program efficacy. Assessments were conducted at baseline, 1 month, 2.5 months, and later at follow-up, at both 9 and 15 months, for the total sample.

Measures

The HSQ²⁸ measures suicide risk behaviors and related risk and protective factors. As previously reported,³² all measures were derived from standard measures or constructed specifically for our research program. Scales are based on 7-point Likert-type response options ranging from 0 to 6, unless otherwise indicated. Higher values indicate higher levels of the measured construct. Psychometric analyses and confirmatory factor analyses established reliability, construct, and predictive validity of all measures.^{32,33}

Suicide risk behaviors—Suicide risk behaviors were measured using 3 indicators: suicidal thoughts, direct threats, and number of suicide attempts within the past month.

Direct threats and suicide attempts in the last month were rare occurrences and were converted to binary variables indicating nonoccurrence or occurrence.³³

Related risk factors—Measures of depression, hopelessness, anxiety, and anger are included as indicators of emotional distress. *Depression* measured depressed affect, using 6 items (eg, “I feel depressed”) adapted from the Center for Epidemiologic Studies Depression Scale for use with adolescents ($\alpha = .87$). *Hopelessness* was captured by a 4-item scale ($\alpha = .84$) (eg, “nothing I do or try seems to work out”). *Anxiety* was based on 4 items ($\alpha = .79$), including “I feel uneasy or anxious.” *Anger control problems*, a 4-item scale ($\alpha = .77$), measured feeling out of control when angry or getting easily angered. Family dysfunction, a 3-item index, included “I have serious conflicts and tensions with my parent(s).”

Protective factors—The 3 protective factors used in these analyses included personal control, problem-solving coping, and family support. *Personal control*, defined as perceived self-efficacy in coping with problems (eg, ability to cope with problems), was measured by a 5-item scale ($\alpha = .76$). *Problem-solving coping*, based on 3 items ($\alpha = .74$), measured active problem-solving approaches used. *Family support*, a 5-item measure of support satisfaction ($\alpha = .90$), reflected the degree of satisfaction with family (eg, satisfied with time spent together).

Analysis

We used a growth model strategy to model change as a function of time and then ask whether variation in the rate of change is related to the experimental condition. In addition, we anticipated 2 distinct stages in the intervention. The first stage was the immediate impact of the interventions (C-CARE, P-CARE, and C + P-CARE) compared with IAU. The second stage was the post-program maintenance of change where we examined stability of the initial change and maintenance effect of program boosters. Initial models showed that the 2 stages were well fit by simple linear models of time. We examined change over (1) the intervention period (baseline to 1 month) and (2) the follow-up period (1–15 months). We used regression imputation with residual substitution to provide for missing data within a given set of responders. To account for missing data due to dropout, we used sample selection equations based on Heckman selection models.

The resulting growth models within each stage were examined by first regressing change on variables capturing exposure to the intervention conditions (C-CARE, P-CARE, and C + P-CARE) relative to IAU. Significant differences due to intervention conditions indicated greater decline than IAU. We displayed differences for change in the first stage (ie, change due to the intervention) and the second stage (ie, maintenance of post-program change). Finally, to determine whether there were differential effects of intervention at follow-up time points prior to 15 months, we conducted analysis of covariance at T_3 (2.5 months) and T_4 (9 months) and compared intervention outcomes with IAU.

RESULTS

Participants ranged in age from 14 to 19 years, with a mean age of 16 years; 54% were at risk for high school dropout. Not unexpectedly, a larger percentage of the sample was female (60%). The ethnicity of the sample represented the makeup of participating school districts; 66% white, with 14% reporting mixed ethnicity, 8% Asian American, 4% African American, and 3% Latino/Hispanic. Participating parents were primarily mothers, average age was 44 years, and 65% were married and considered their employment to be white collar.

Baseline equivalency

One-way analysis of variance and chi square tests showed no significant differences among the intervention groups for the demographic variables of sex, age, ethnicity, or school status. Intervention groups were also equivalent on the following outcome variables: suicide ideation, suicide threats, suicide attempts, depression, anxiety, hopelessness, anger, and family dysfunction. Exceptions were personal control ($F_{3,611} = 3.78, P = .01$) and family support ($F_{3,611} = 4.79, P = .003$), where C + P-CARE youth reported lower personal control and family support than P-CARE youth. C + P-CARE youth also reported lower baseline problem-solving coping skills ($F_{3,611} = 3.64, P = .01$) than C-CARE youth.

Within-group differences for intervention period and follow-up

Within-group paired t tests showed significant declines for all risk variables: suicide behaviors as well as related risk factors of depression, hopelessness, anxiety, anger, and family dysfunction. The proportion of youth reporting suicide attempts in the last month also declined for each group. Low base rates made it difficult for the declines in the P-CARE group to reach statistical significance, but declines were significant for the C-CARE, C + P-CARE, and IAU groups. The protective factors of personal control, problem-solving coping, and family support showed significant increases during the intervention period for all 4 groups. In summary, there were decreases in risk factors and increases in protective factors compared with baseline within all 4 groups, and these differences were maintained for the 15 months examined. The growth curve analyses that follow examined differences in these declines or increases between the groups.

Prevention effects

Linear growth curve models were used to examine change over (1) the intervention period (baseline to 1 month) and (2) the follow-up period (1–15 months). Table 2 summarizes the slope estimates across the intervention period. All 4 groups (3 interventions and 1 comparison) had significant declines in negative outcomes (or, conversely, increases in positive outcomes). Differences represent the influence of C-CARE, P-CARE, and C + P-CARE, relative to IAU, during the intervention period. The combination C + P-CARE was most effective in decreasing negative outcomes (suicide ideation, suicide threats, depression, hopelessness, anxiety, and anger) and increasing positive outcomes (personal control, problem-solving coping, and family support). C-CARE was also significantly more effective than IAU in reducing negative outcomes (depression, anxiety, and anger) and increasing positive (personal control). In general, as was hypothesized, the magnitudes of the estimates ranked as expected (C + P-CARE > C-CARE > P-CARE > IAU).

Suicide risk behaviors

For both suicide ideation and threats, C + P-CARE was associated with faster rates of decline than IAU. There were no intervention specific effects for suicide attempts within the last month. Because suicide attempts is a low-base rate variable, the reported attempts in the last month showed limited variation.

Related risk factors

The slope coefficients in Table 2 indicate that C + P-CARE and C-CARE were associated with significantly greater rates of decline in related risk factors than was IAU. Both the C + P-CARE and C-CARE interventions had significant effects on the rates of decline in depression, anxiety, and anger. The C + P-CARE intervention alone showed a greater decline in hopelessness than IAU.

Protective factors

Consistent with study hypotheses, the growth curve models revealed that C + P-CARE increased the rate of change for family support, personal control, and problem-solving coping. Increased personal control was also observed for C-CARE compared with IAU.

Follow-up effects

Compared with baseline, all intervention effects were maintained over the 15-month follow-up period for all intervention groups. The growth curve coefficients indicate greater rates of decline (or increase) during the intervention period, but there were no statistical differences between interventions at 15 months. Analyses of covariance (controlling for baseline) indicate that C + P-CARE outcomes were significantly lower (with Bonferroni corrections) than IAU for suicide ideation ($F_{3,485} = 4.35$, $P < .005$) and threats ($F_{3,483} = 3.79$, $P < .01$) at 9 months postbaseline and for anxiety at 2.5 months ($F_{3,561} = 4.2$, $P < .006$); for C-CARE, anxiety was significantly lower than IAU at 9 months ($F_{3,483} = 3.3$, $P < .02$).

DISCUSSION

To our knowledge, Promoting CARE is the only systematically evaluated comprehensive suicide prevention program for youth identified as at risk for suicide. Findings demonstrate the efficacy of suicide prevention efforts that include parent and school involvement and expand previous findings demonstrating the success of the C-CARE intervention.^{24,30}

All study groups reported significant declines from their baseline risk levels for suicide ideation, suicide threats, depression, hopelessness, anxiety, and family dysfunction. In addition, there were significant gains for all groups in personal control, problem-solving coping, and family support, and these changes were maintained up to the 15-month assessment, with no evidence of relapse. These findings speak to the power of brief school-based intervention and, specifically, to the importance of the screening, identification of risk, and linkage to support resources, both at home and at school, that was central to all components of the intervention, including IAU. Furthermore, they confirm an approach to suicide prevention that involves increasing the readiness and willingness to receive support on the part of youth at the same time that it activates the availability of support both at home and at school.

Prevention effects were examined for 2 phases of the intervention. Period 1 corresponds to the immediate postintervention effects and thus the effects can be attributed to the youth intervention (eg, C-CARE or SYSR), connections to school counselor (in person) and parent (via telephone), and the first of the 2 P-CARE visits. This is the period immediately following the identification of youth risk and, perhaps, the most critical intervention period. It is during this period that the intervention focuses specifically on awareness of suicide risk behaviors, establishing sources of support and planning for future stressors. Period 2 captures additional effects attributable to the second P-CARE visit, the parent booster phone call, and the follow-up C-CARE interview, which are focused on maintaining gains and expanding the repertoire of mood management and problem-solving skills.

As hypothesized, the majority of the short-term effects observed are related to the C + P-CARE intervention. C + P-CARE demonstrated important reductions in suicide risk variables and increases in coping and family support. C + P-CARE and, secondarily, C-CARE, showed reductions in emotional distress and increases in personal control. A pattern of results emerges where initial reductions in risk from the C-CARE intervention become either increasingly significant, or only significant, with the addition of the P-CARE intervention. Importantly, C-CARE is the only intervention that showed results on its own, that is, reductions in depression, anxiety, and anger and an increase in personal control

during the first month postintervention. Since the parent intervention, P-CARE, on its own, did not produce significantly different results compared with IAU for any outcome, it seems that it is C-CARE that provides a foundation upon which the parent intervention boosts effects. These outcomes are consistent with observations that suicide-vulnerable youth often have difficulty assessing their situation, realizing their risk, and asking for or receiving help, but benefit when their risk is identified by others and appropriate help and support are offered.

The supplementary effects achieved by adding P-CARE to C-CARE are notable. The same effects were not observed for the P-CARE-only condition where youth participate in the brief SYSR interview instead of C-CARE. P-CARE is founded on the basis of the social support principle of optimizing naturally occurring support resources as a method of creating durable support³⁴ and on the basis of teens' preference for seeking help from a parent if the parent is seen as competent and knowledgeable.³⁵ P-CARE, which focuses on increasing communication related to suicide risk and mood management, and activating parent support, seems to complement the strategies of the C-CARE intervention and to be responsive to the reciprocal nature of support relationships—in other words, both interventions are more effective in the presence of the other. Finally, we posit that C + P-CARE represents a developmentally appropriate approach to parent involvement for the older adolescent,⁸ responsive to a developmental period when the parent role is important but less central than in earlier years. Results for the C + P-CARE intervention suggest that individual youth intervention in conjunction with parent intervention is effective for the high school-age adolescent, with the parent intervention supporting and amplifying the effects of youth intervention. Accordingly, planning for how parent and youth interventions interact can be a way to maximize the potential effects of the 2 interventions together.

While the C + P-CARE intervention demonstrated the majority of intervention effects, the advantage of C + P-CARE in terms of rate of decline over the other interventions and IAU had dissipated by 15 months. However, additional analysis-of-covariance comparisons of the intervention components indicate that as far as 9 months postintervention, C + P-CARE maintains a lower rate of suicide ideation and threats, as well as lower anxiety, than IAU. Thus, the combined intervention is distinguished from the briefer IAU intervention over a period of at least 9 months, conferring greater protection from escalation of suicide risk. This is not a trivial advantage considering the compressed nature of time during adolescence (9 months represents a school year), the impulsivity common during this period, and the serious consequences of escalating suicide risk. Finally, it is important to remember that results for C-CARE and C + P-CARE are being tested against results for a comparison group that was treated with a minimal intervention that also had powerful effects on risk—an assessment that was founded upon similar prevention principles as the tested interventions (increased awareness of risk behavior and connection to support).

Limitations

This study is limited to reliance on self-report data. However, when attempting to understand internal experiences such as suicide ideation and depression, reliance on self-report data is appropriate and typical. In addition, the study does not address the question of which aspects of intervention predict the successful outcomes, nor the question “for whom these brief interventions work best”—for example, across gender and ethnicity, by degree of severity of suicide risk behaviors, or based on specific parent characteristics/responses.

Summary

The findings for the Promoting CARE program are an important contribution to the search for acceptable, feasible, and efficacious suicide prevention for high-risk populations. Study

results demonstrate the advantage of a comprehensive approach to suicide prevention that involves risk screening and the implementation of a brief, school-based, preventive intervention that includes both adolescents and their parents.

Acknowledgments

The authors acknowledge and express their appreciation to the many students and parents/guardians whose participation in this study enriched their understanding of youth suicide prevention. They also thank those who implemented interventions with youth and parents, as well as the many school nurses, counselors, teachers, and administrators who reached out to the student participants, enhancing their support resources.

This research was supported by grant R01 NR04933 from the National Institute on Nursing Research.

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Table 1

The 4 Study Options (Across) and Their Components (Down)

Intervention Components	C + P-CARE (n = 164)	C-CARE-Only (n = 153)	P-CARE-Only (n = 155)	Intervention as Usual (n = 143)
Counselors-CARE ^{23–25} 2-h computerized interview and brief counseling intervention designed to facilitate motivation to access support. Involves connection to school resources and parent phone call.	X	X		
Brief Interview (Screen for Youth Suicide Risk—SYSR) ³⁰ 30-min interview addressing suicide risk factors, derived from the C-CARE interview. Involves connection to school resources and parent phone call.			X	X
Parents-CARE Two 2-h parent sessions. Suicide risk reviewed; support and communications skills, conflict reduction and youth mood management addressed.	X		X	

Table 2 Change in Outcomes by Intervention Group: Rate of Change Coefficients^a

	IAU (N = 143)	C-CARE (N = 153)	P-CARE (N = 155)	C + P-CARE (N = 164)
Risk outcomes				
Suicide ideation	– 0.917	– 1.131	– 1.033	– 1.451 ^b
Direct suicide threats	– 0.318	– 0.443	– 0.294	– 0.556 ^d
Depression	– 0.685	– 0.951 ^c	– 0.815	– 1.021 ^c
Hopelessness	– 0.663	– 0.819	– 0.666	– 0.968 ^c
Anxiety	– 0.440	– 0.683 ^d	– 0.515	– 0.849 ^b
Anger	– 0.322	– 0.567 ^d	– 0.497	– 0.584 ^c
Protective factors				
Personal control	0.312	0.499 ^d	0.387	0.687 ^b
Problem-solving coping	0.228	0.089	0.260	0.570 ^c
Family support	0.290	0.404	0.381	0.595 ^c
Family Risk Factor				
Family dysfunction	– 0.554	– 0.553	– 0.534	– 0.662

^a Intervention period includes youth C-CARE/SYSR and parent home visit 1. Differences indicated are between the IAU comparison group and experimental groups.

^b $P < .001$, 1-tailed tests.

^c $P < .01$, 1-tailed tests.

^d $P < .05$, 1-tailed tests.