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ANGER CORRELATED WITH PSYCHOSOCIAL VARIABLES IN RURAL YOUTH

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Abstract

Uncontrolled anger is a contributing force in the three leading causes of adolescent death: homicide, suicide, and injuries. Anger may be one of the early warning signs which could lead to violent behavior. The purpose of this study was to examine the relationship between anger experience and expression with the potential correlates of life events, perceived social support, self-esteem, optimism, drug use, anxiety, and depressive symptoms in rural adolescents. The participants (n=193) were aged 14 to 17 years old in ninth through eleventh grades enrolled at three rural Western Pennsylvania public high schools. Participants completed nine questionnaires. Negative life events, anxiety, drug use, and depressive symptoms had significant positive correlations with anger. In addition, anger was found to have significant negative correlations with the adolescents' perceived family support, self-esteem, and optimism. With this knowledge, health promotion programs conducted by pediatric nurses can target anxiety, drug use, and depressive symptoms while bolstering family support, self-esteem, and optimism to promote anger management in adolescent health care.

Keywords

Adolescents; Anger; Mental health; Rural

Uncontrolled anger is a contributing force in the three leading causes of adolescent death: homicide, suicide, and injuries (Centers for Disease Control and Prevention [CDC], 2006).

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Anger may be one of the early warning signs which may lead to this violent behavior. Anger that is expressed frequently and intensely in response to minor irritants may signal potential violent behavior (Dwyer et al., 1998). Underscoring the importance of this issue, *Healthy People 2010* identified three of the major health objectives for the year 2010 as: (a) decreasing the adverse effects of stress by 18%; (b) decreasing the rate of suicides by 10%; and (c) reducing violence (U.S. Department of Health and Human Service [USDHHS], 2000). It is difficult to predict when behavior may escalate to violence, but recognition of uncontrolled anger may be a beginning step. The National Center on Minority Health and Health Disparities' mission at the National Institutes of Health (NIH) advocates to support behavioral research and to reach out to underserved populations (USDHHS, 2007). In particular, rural adolescents face additional disparities related to the compounding stresses of geographic isolation, lack of specialized services, and poverty. Although the actions of angry youth, from school shootings to dating violence, have peppered the media in recent years, few studies have been reported that examine anger in adolescents.

PURPOSE

The purpose of this study was to examine the relationship between anger experience and expression with the potential correlates of life events, perceived social support, self-esteem, optimism, anxiety, drug use, and depressive symptoms in rural adolescents.

Literature Review

Adolescence is a time of biologic, psychosocial, emotional, and intellectual growth and development. Erikson (1968) identified the psychosocial development of the adolescent as resolving the critical tasks of identity versus role confusion. During this period relationships are defined, personal and social behaviors are refined, and a clearer sense of self emerges. The attitudes and beliefs developed during this period are likely to become established patterns of health behavior, making the period of adolescence a prime opportunity for health promotion (Ablorh-Odjidja & Joseph, 2007; Dickey & Deatrick, 2000).

Anger is an emotional state typically accompanied by psychological and biological changes. Anger can vary from minor annoyance to rage (APA, 2007). Golden (2003) has identified that anger is a response to distress related to environmental obstacles. Uncontrolled anger can be a significant problem for adolescents and can result in depression, suicidal tendencies, substance abuse, hostility, rage, violence and crime. Spielberger (1999) identified two aspects of anger: (a) state anger in which the individual responds emotionally to circumstances and (b) trait anger which is a more pervasive response.

Almost one quarter of Americans live in areas identified as rural (USDHHS, 2000; US Census Bureau, 2000). Rural adolescents are exposed to different social forces than their urban counterparts (Stanton et al., 2006). They are more likely to live in poverty (Seekins, 2002) with associated risks for poor physical and mental health, school drop out, early sexual intercourse, and other problem behaviors (CDC, 2006; D'Onofrio, 1997; Goreham, 1997; Sloboda, Rosenquist, & Howard, 1997; Smith & DiClemente, 2000). Conger, Ge, Elder, Lorenz, and Simons (1994) found that adverse economic conditions in rural families led to marital conflict, parental depressed mood, increased risk of adolescent depression and aggression. The various problems evident in rural areas may be compounded by the lack of specialty health services, resulting in rural health disparities (Anderson & Gittler, 2005; USDHHS, 2000). Attempting to apply urban designed health promotion interventions in rural settings has been met with limited success (Stanton et al., 2006).

While most teens make successful adjustments to life, research historically indicates that psychological difficulties in youth often develop into psychiatric problems in adulthood

(Kriechman, 1985; Rutter, Graham, Chadwick, & Yule, 1976; Swift, 1987). The mentally healthy adolescent is one who has sufficient support and coping skills to deal with anger and stress plus negotiate family, social, and school problems (Compas & Orosan, 1993).

Anger as a symptom, and the ability to control it, can impact emotional health and social relationships. Mental health has been identified as important in regard to academic achievement (Puskar & Bernardo, 2007). Historically, adolescent males respond to anger with physically aggressive responses and physical attacks on objects, as opposed to girls who respond to anger verbally or nonviolently (Spielberger & London, 1982). Dodge, Lochman, Harnish, Bates, and Pettit (1997) studied aggression in youth and found reactive aggressive youth to have inadequate problem-solving coping patterns. Hubbard, Dodge, Cillessen, Coie, and Schwartz (2001) also noted that social-cognitive processes in relationships were an important factor in boys' aggressive behavior. It has been noted that there is no difference in the amount of anger experienced or expressed due to gender (Yarcheski, Mahon, & Yarcheski, 2002), while others have found that females reported higher levels of internal anger expression (Lamb, Puskar, Sereika, Patterson, & Kaufmann, 2003) and males possess higher levels of anger in other areas, specifically outward anger and angry reaction (Guimaraes & Pasian, 2006).

Life events and the meaning of life events are determined, to a great extent, by the individual's perceptions and coping resources. In a study of 624 rural adolescents, anger was found to be positively correlated to negative life events; specifically, an increasing number of negative life events were shown to be strongly linked with increased levels of anger (Puskar, Sereika, Lamb, Tusaie-Mumford, & McGuinness, 1999a).

Social support has been studied repeatedly and shown to offset the negative effects of anger by encouraging health-promoting behaviors (Ebata & Moos, 1994; Puskar, Tusaie-Mumford, Sereika, & Lamb, 1999b; Spielberger, 1999; Yeaton & Sechrest, 1981). Increasing levels of social support have been positively associated with decreasing depressive tendencies (Heponiemi et al., 2006) and reducing alcohol use in adolescent populations (Hamdan-Mansour, Puskar, & Sereika, 2007). Importantly, parent-family connectedness and perceived school connectedness was protective for adolescents by buffering the negative effects of a violent event (Resnick et al., 1997).

Self-esteem and optimism affect mental health outcomes. A 1998 study of rural public-high school students found loneliness and low self-esteem were identified as major events with which to cope (Woodward & Frank, 1988). Scheier and Carver (1992) found optimism to be correlated significantly with active coping, planning, and positive reinterpretation. The less optimistic tended to use more avoidance and social withdrawal strategies. Puskar et al. (1999a) found that rural teens were less optimistic compared to established norms of students at an urban university. Adolescent males who identified higher levels of optimism and perceived social support were found to have increased capability to adapt in the face of negative life events (Tusaie, Puskar, & Sereika, 2007).

Estimates of the prevalence of depressive symptomatology was ten percent in a study of adolescents in regular school settings (Puskar et al., 2006). Increased depressive symptoms have been found to be strongly associated with increased anxiety and somatic complaints in rural adolescents (Puskar, Sereika, & Haller, 2003). Furthermore, in a fourteen-year longitudinal study of youth, Heponiemi et al. (2006) found that hostility was strongly related to depressive tendencies in children and adolescents.

In summary, the literature review demonstrates that multiple influences affect the emotional wellbeing of our rural youth. Previous studies have explored anger with numerous variables. The consistent finding is that anger is important to study. Efforts at designing evidence-based

interventions aimed at diffusing anger and building resiliency can be enhanced by understanding the factors that are significantly correlated with anger.

METHODS

Sample and Data Collection

This study used a descriptive correlation design with a cross-sectional survey of rural youth. Endorsement and letters of support were obtained from the local school board of each participating high school. The study was approved by the University of Pittsburgh Institutional Review Board. Prior to collection of data, members of the research team met with eligible freshman, sophomore, and junior participants in an assembly at each high school to explain the project. Informed consent was obtained by human subjects (adolescents). Additional to participants signed consent a parental signed consent was obtained for all participants younger than 18 years of age before being included in the study.

The participants in this study ($n = 193$) were adolescents ranging in age from 14 to 18 years recruited from the ninth, tenth, and eleventh grades at the three rural Western Pennsylvania public high schools. Participants were fifty-three percent female ($n = 103$) and predominately Caucasian (86.5%, $n = 167$), with a mean age of 15.57 years. A majority of participants were in the ninth grade (57%, $n = 110$), and the smallest assemblage of participants (16.6%, $n = 32$) were in the eleventh grade. Most were pursuing a traditional academic course of study (88.6%; $n = 171$) with a small number of participants enrolled in vocational (6.7%, $n = 13$), business (1.5%, $n = 3$), and remedial (1%, $n = 2$) programs.

Collection of data included completion of nine self-report measures: Demographic Form, the State-Trait Anger Expression Inventory, Life Events Checklist, Perceived Social Support Scale, Rosenberg's Self Esteem Scale, the Life Orientation Test Revised, Self-Report for Childhood Anxiety Related Emotional Disorders, Drug Use Screening Inventory, and the Reynolds Adolescent Depression Scale-2 (Spielberger, 1999; Johnson & McCutcheon, 1980; Procidano & Hellers, 1983; Rosenberg, 1965; Scheier & Carver, 1992; Birmaher et al., 1997; Tarter, 1990; Tarter and Hegedus 1991; Reynolds, 2002). The surveys were administered in a group setting during a scheduled school day. Completion of all nine measures took approximately one hour and twenty minutes. Participation in the study was voluntary with each student being compensated \$10.00 for their time.

Measures

Anger—To assess anger in this rural adolescent sample, the State-Trait Anger Expression Inventory (STAXI-2) was used (Spielberger, 1999). The STAXI-2 is a 57-item self-report instrument that measures anger experience and anger expression using a four-point Likert response format and 12 subscales (see Table 1 and Table 2).

Life Events Checklist—The Life Events Checklist (LEC) is a self-report scale that measures life events in older children and adolescents (Johnson & McCutcheon, 1980). It consists of 46 items plus four blank spaces for participants to write significant events experienced that are not included in the checklist. Test-retest correlations for positive and negative life-change scores were 0.69 and 0.72, respectively.

Social Support—The Perceived Social Support (PSS) scale is a 40-item list that measures the nature of social support in adolescents (Procidano & Hellers, 1983). Items are equally divided into two subscales: PSS-Family and PSS-Friends. It measures the nature and quality of one's social network. Cronbach's alpha for the family subscale was 0.88 and for the friends subscale, 0.84.

Self-Esteem—Rosenberg’s Self-Esteem Scale is a ten-item survey which uses a four-point Guttman scale with responses ranging from (1) strongly agree to (4) strongly disagree (Rosenberg, 1965). The scale was designed for use with adolescents to assess the individual’s current attitude about him/herself. Reproducibility of the scale has been found to be 93% while scalability has been shown to be between 72% and 73%. Results indicated internal consistency with a Cronbach’s alpha of 0.77. Coefficients of reproducibility were 0.91; test–retest reliability was found to be 0.85.

Optimism—The Life Orientation Test Revised (LOT-R) designed by Scheier and Carver (1992) measures optimism by assessing generalized outcome expectancies of individuals. The scale consists of ten items that solicit positive and negative connotations for items. Each item is scored on a five-point Likert scale with responses ranging from strongly agree to strongly disagree. Cronbach’s alpha for the scale has been calculated at 0.77 (Tusaie et al., 2007). Test—retest reliability based on a sample of 142 who completed the LOT-R on two separate occasions was 0.79.

Anxiety—The Self-Report for Child Anxiety Related Emotional Disorders (SCARED) (Birmaher et al., 1997) was created to identify children and adolescents at risk for anxiety disorders. Fourty one statements related to common anxiety symptoms are evaluated by this self-report instrument. Responses are reported using a three-point Likert scale, which is scored in the direction of pathology. The instrument demonstrated good internal consistency for both the total anxiety score and each of the subscales, (Cronbach alpha range of .78 and .87) (Birmaher et al., 1999). For the purposes of this report, only the general anxiety and panic/somatic anxiety subscales were examined.

Drug Use—Drug Use Screening Inventory (DUSI) is a 26-item self-report scale which quantifies severity of drug and alcohol use in adolescents as well as associated health, psychiatric, and psychosocial problems (Tarter, 1990; Tarter and Hegedus, 1991). Average internal reliability was found to be 0.74 for males and 0.78 for females. Test–retest reliability averaged 0.95 for males and 0.88 for females.

Depression—Depression was evaluated using the Reynolds Adolescent Depression Scale – 2 (RADS-2). Developed by Reynolds (2002), this 30-item self-report measure uses a four-point Likert response scale to assess depressive symptoms and was developed specifically for use with adolescents to measure cognitive, motor, somatic, and interpersonal symptoms commonly associated with depression. Scores calculated between 66 and 77 are suggestive of some depressive symptoms while scores of 77 or above indicate significant depressive symptoms. Internal consistency was found to be 0.93, a with test–retest reliability of 0.79 over three months (Reynolds, 2002).

Data Analysis

Questionnaires were scanned and verified using Teleform, thereby providing increased accuracy of data entry and verification (Puskar et al., 1996a). SPSS was used for the analysis of the data. Descriptive statistics (Table 1) including frequency, mean, and standard deviation, were calculated for variables. Spielberger (1999) identified that significant differences have been identified between male and female adolescent respondents in the STAXI-2 normative groups; therefore gender-specific means have been reported for scales.

Pearson’s *r* correlation was used to compute relationships between anger and the variables of interest (Table 2). The level of significance was set at $p < 0.05$. Because directional relationships and statements of causation between anger and the psychosocial variables examined cannot be implied by examining correlations, relationships found in this study are

measured by the strength of the association using correlations in the 0.1 to 0.5 range. The following interpretations for correlations in psychological research were used: correlation greater than 0.5 is strong, 0.5–0.3 is moderate, 0.3–0.1 is weak, and anything smaller than 0.1 is insubstantial or trivial (Cohen, 1988).

Findings

Table 1 describes the means and standard deviations of anger, life events, social support, self-esteem, optimism, anxiety, and depressive symptoms, plus those descriptive statistics according to gender. The mean scores for the measures (Table 1) were noted to be consistent with the identified population norms (Spielberger, 1999; Johnson & McCutcheon, 1980; Procidano & Hellers, 1983; Rosenberg, 1965; Scheier & Carver, 1992; Reynolds, 2002).

Table 2 displays the values of the associations between anger and the variables. Overall, when examining the findings of STAXI-2 subscales, it was noted that an inverse relationship typically existed with the psychosocial factors of family social support, self-esteem, and optimism. Positive correlations were noted with life events, drug scores, and depressive symptoms. Depression scores revealed a significant positive correlation with anger in all subscales ($r = 0.507$ to 0.238 , $p < 0.01$) except for Anger Control–Out and Anger Control–In, which were found to have moderate significant negative correlations ($r = -0.275$, $p < 0.01$; $r = -0.238$, $p < 0.01$). The findings are further described below.

Statistically significant relationships were moderately correlated between the occurrence of negative life events (i.e., getting a bad grade, death of a family member, breaking up with a boy/girlfriend), with adolescents' state anger (intensity of anger) ($r = 0.323$, $p < 0.01$) and feeling angry (current angry feelings) ($r = 0.330$, $p < 0.01$). In other words, as the number of negative life events increased anger scores also increased. In contrast, the relationship between positive life events and anger in this population was found to be minimal.

This study found significant correlations between positive family-support scores and lower anger scores. During a time typically characterized by a growing chasm in family relationships and an increased reliance on peer groups, interestingly, these data reflects that increases in the perceived family support were found to be significantly correlated with decreases in the intensity of the young person's state anger ($r = -0.303$, $p < 0.01$) and eight other subscales (see Table 2). A significant positive correlation for attempts to control anger suppression (Control–In) was found with increased family support ($r = .207$; $p < 0.01$). Surprisingly, no consistent trend was noted with the adolescents' perception of the support of their friends and peer groups.

Increases in both self-esteem and optimism scores were inversely associated with anger for all anger subscales with the exception of the ability to control anger, which was positively correlated with self-esteem and optimism. This indicates that the participants who had higher self-esteem and optimism had lower anger scores and they had higher anger-control scores. The suppression of anger (Anger–In) showed significant moderate negative correlations with both self-esteem ($r = -0.438$, $p < 0.01$) and levels of optimism ($r = -0.329$, $p < 0.01$). This indicates that adolescents with decreased self-esteem and optimism had increased suppression of anger. Conversely, participants with higher self-esteem and optimism scores had lower scores of Anger–In (suppression of anger).

Angry reactions, according to Spielberger (1999), are typically the result of experiencing intense angry feelings as a consequence of criticism and negative commentary by others. This study found that increased angry reactions were moderately correlated with increased ($r = 0.359$, $p < 0.01$) generalized anxiety in this rural adolescent population. Generalized anxiety was further moderately correlated with a suppression of angry feelings (Anger–In) ($r = 0.499$,

$p < 0.01$), indicating that, as anxiety increased, so did internalizing anger. In general, the subcategory of somatic/panic scores revealed significant correlations in all subscales of the STAXI-2. More specifically, the data revealed positive significant correlations with somatic/panic scores and subscales of state anger ($r=0.386, p < 0.01$) and feeling angry ($r = 0.385, p < 0.01$). A significant negative correlation with a decreased ability to control anger expression (Control–Out, $r = -0.352, p < 0.01$) was noted in the presence of increased somatic/panic scores.

Reports of increased drug use were significantly correlated with trait anger ($r=0.386, p < 0.01$) and temperament to become angry without specific provocation ($r = 0.301, p < 0.01$). The outward expression of anger (Anger–Out), which includes aggressive behavior directed at others, was also significantly positively correlated with drug use ($r = 0.418, p < 0.01$).

Intensity of anger (State Anger) ($r = 0.411, p < 0.01$), current levels of feeling angry ($r = 0.463, p < 0.01$), and the suppression (Anger–In) of those feelings ($r = 0.507, p < 0.01$) were found to have significant positive (moderate to high) correlations with increased depressive symptom scores. Significant correlations were noted between scores of trait anger and depressive symptom scores ($r = 0.395, p < 0.01$). This indicates that as the anger subscale scores increased, so did depressive-symptom scores; and conversely, as anger subscale scores decreased, so did the depressive-symptom scores.

DISCUSSION

This study further substantiates the complex relationships associated with anger experience and expression. Individuals that report high levels of trait anger are identified by Spielberger (1999) to often feel that they are treated unfairly or picked on by others, frequently resulting in increased frustration. The importance of pediatric nurses and other health care providers in identifying relationships between anger, life events, social support, self-esteem, optimism, anxiety, drug-use, and depression in the rural adolescent is underscored by the unprecedented increase in violent behavior and acts of aggression by youth which have captured national attention in recent years.

Findings of this study demonstrate that when negative life events and drug use are increased, expressions of anger are increased. The potential for harm to the adolescent or others is a possible risk. Considering the reality of uncontrollable negative life events, the creation of interventions at the individual and community level that augment coping mechanisms and resilience in rural youth is important. Pediatric nurse interventions that promote positive cognitive reframing of a negative life event and a reduction of cognitive distortions can potentially reduce negative coping patterns, such as drug and alcohol use (Hamdan-Mansour et al., 2007), which may lead to decreases in the negative expression of anger.

Perceived positive family social support was found significantly correlated with lower anger scores. This reinforces the importance of family support in a time when adolescents behave like the family is not as important as their peers. No statistical significance was found correlated with friends and anger scores. With these findings, pediatric nurses can teach families that persevering in being supportive to adolescents, in spite of possible adolescent indifference, is important in the adolescent's experience and expression of anger.

An inverse relationship was found with anger as it relates to self-esteem and optimism. Development of interventions that enhance self-esteem and optimism may play a role in the reduction of anger in the rural adolescent. Adolescent anger is multifaceted, impacting the individual, family, and the community at large. Enhancing cultural pride and ethnic identity has been identified as a mechanism for increasing self-esteem in several populations (French, Seidman, Allen, & Aber, 2006; Salazar et al., 2005; Doswell & Braxter, 2002), and may be an

effective strategy in the rural community. Initiatives to build pride in the rural heritage of this population will likely help to enhance the esteem of all residents, affecting the ability of the adolescent to express anger in a constructive manner. Offering hope is important in promoting optimism. As self-esteem and optimism increased, anger scores decreased in this study; therefore, interventions that build self-esteem and optimism are important for the pediatric nurse to implement.

This study reveals moderate to strong correlations between anger, anxiety, depression, and somatic complaints that are consistent with findings of Puskar, Sereika, and Haller (2003), who found anxiety and depression to be linked with an increase in somatic complaints. Repeated and persistent physical complaints may be somatic manifestations of an underlying emotional disorder. Acknowledgment of these correlations will help pediatric nurses and other professionals working with rural youth in regard to screening and treating the underlying pathology. Although all healthcare providers bear this burden, the pediatric nurse practitioner may be at the forefront of this challenge. Given the holistic approach to illness observed by the profession and the increased need for providers in rural settings (Puskar et al., 1996b), the pediatric nurse practitioner is in a key position in this area of health promotion. Creation of programs to increase resilience, facilitate diffusion of these intense emotions, and allow for early intervention with at-risk populations may discourage the escalation of anger to violence or other equally destructive outcomes.

When correlated with depressive symptoms, not only does anger increase in intensity and frequency, but the control of outward expression of anger, as well as the inward resolution of the experience is decreased. How this relates to the age-old adage that “depression is anger turned inward” needs further exploration. By recognizing and incorporating associations identified in this study between increased anger experience and expression with depressive symptomology, enhanced screening may be justified in schools and primary care settings. Troubled youth who have angry outbursts or display other disruptive behavior may be exhibiting early warning signs of depression and the potential for self-harm. Supporting this implication, Tusaie et al. (2007) have identified that an inverse relationship exists between the capability to adapt in the face of adversity and increased level of depression, number of suicide attempts, and substance abuse.

Implications for Nursing Practice

Negative life events, anxiety, drug use, and depressive symptoms had significant positive correlations with anger. In addition, anger was found to have significant negative correlations with the adolescents’ perceived family support, self-esteem, and optimism. With this knowledge, health promotion programs conducted by pediatric nurses can target anxiety, drug use, and depressive symptoms while bolstering family support, self-esteem, and optimism to promote anger management in adolescent health care.

More than 60% of the population is underserved by mental health professions in rural America. Increasing the accessibility, availability, and acceptability of mental health services is imperative to reducing this health disparity plaguing rural communities (The Annapolis Coalition on the Behavioral Health Workforce, 2006). The assessment of adolescent mental health is a shared burden. The interactions between the primary care provider, pediatric school nurse, and the adolescent have been identified as key encounters appropriate for evaluation of the mental wellbeing and coping processes of rural youth (Flaspohler, Anderson-Butcher, Paternite, Weist, & Wandersman, 2006; Anderson & Gittler, 2005; Puskar et al., 2006).

State and federal funding is often based on population density, creating further healthcare disparities (USDHHS, 2000). Anderson and Doyle (2005) identified that when services are made available to the at-risk adolescent, there is an increase in help-seeking behaviors. The

lack of access to many preventative services and decreased availability of specialty services in the rural community demands increased attention and active involvement by those who have the opportunity to intervene.

In conclusion, the period of adolescence is a crucial time for formation of health habits and patterns that are likely to become established adult behaviors. With the goal of decreasing the incidence of youth violence, suicide, and maladaptive behaviors, pediatric nurses can play a key role in increasing awareness and intervention with anger and the associated psychosocial factors. This can be done through community education, early assessment and intervention, and collaboration with other healthcare providers and school health officials. Creation of evidence-based interventions to promote anger management, coping, and resilience in our rural youth has been identified as an area of limited study worthy of future research.

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Table 1

Descriptive statistics of anger, life events, social support, self-esteem, optimism, anxiety, and depressive symptoms

	Group Mean	SD	Male Mean	SD	Female Mean	SD
State anger	20.19	7.39	20.08	7.30	20.28	7.50
Feeling angry	7.27	2.73	7.12	2.89	7.40	2.59
Verbal expression	7.06	3.33	6.88	3.00	7.21	3.60
Physical expression	5.85	2.26	6.07	2.40	5.66	2.12
Trait anger	19.32	6.11	19.33	5.45	19.32	6.65
Temperament	6.98	3.05	7.07	3.07	6.91	3.05
Response	8.70	2.94	8.68	2.86	8.72	3.03
Anger-out	17.28	4.56	17.26	4.30	17.30	4.81
Anger-in	16.78	4.73	15.59	4.30	17.82	4.86
Control-out	22.01	4.96	22.13	5.06	21.91	4.89
Control-in	21.51	5.47	21.08	5.14	21.88	5.74
Anger index	37.94	12.74	37.21	11.71	38.58	13.61
Positive life events	10.27	6.97	10.12	6.79	10.40	7.15
Negative life events	7.69	7.66	5.73	5.45	9.39	8.83
Friends social support	12.70	4.97	11.82	4.77	13.48	5.03
Family social support	12.40	4.99	12.27	4.82	12.52	5.16
Self-esteem	30.46	5.04	21.99	4.91	19.13	4.79
Optimism	13.69	4.05	14.9	3.48	12.50	4.43
Anxiety-somatic/panic	4.80	4.52	3.60	3.32	5.85	5.15
Anxiety-generalized	6.44	4.22	5.14	3.50	7.58	4.48
Depressive symptoms	56.90	14.05	53.69	12.81	59.68	14.54

Note: Anger-out = anger expressed, Anger-in = anger suppressed, Control-out = attempts to control anger expression, Control-in = attempts to control anger suppression.

Table 2

Correlations between anger and psychosocial factors

	Positive life event	Negative life event	PSS friends	PSS family	Self-esteem	Optimism	Anxiety generalized	Anxiety somatic/panic	Drug use	Depressive symptoms
State anger	.081	.323 [†]	-.068	-.303 [†]	-.256 [†]	-.293 [†]	.147 [*]	.386 [†]	.255 [†]	.411 [†]
Feeling angry	.063	.330 [†]	-.089	-.257 [†]	-.291 [†]	-.312 [†]	.225 [†]	.385 [†]	.241 [†]	.463 [†]
Verbal expression	.091	.289 [†]	.008	-.273 [†]	-.228 [†]	-.242 [†]	.140	.355 [†]	.207 [†]	.345 [†]
Physical expression	.054	.231 [†]	-.126	-.273 [†]	-.149 [*]	-.223 [†]	.000	.270 [†]	.234 [†]	.273 [†]
Trait anger	.006	.298 [†]	-.084	-.265 [†]	-.215 [†]	-.206 [†]	.265 [†]	.377 [†]	.386 [†]	.395 [†]
Temperament	-.009	.246 [†]	-.089	-.187 [†]	-.119	-.184 [*]	.110	.364 [†]	.301 [†]	.267 [†]
Reaction	.015	.225 [†]	-.014	-.204 [†]	-.191 [†]	-.119	.359 [†]	.259 [†]	.215 [†]	.340 [†]
Anger-out	.034	.268 [†]	.080	-.280 [†]	-.203 [†]	-.216 [†]	.150 [*]	.374 [†]	.418 [†]	.329 [†]
Anger-In	.023	.244 [†]	-.212 [†]	-.263 [†]	-.438 [†]	-.329 [†]	.499 [†]	.317 [†]	.191 [†]	.507 [†]
Control-out	.074	-.104	.111	.130	.300 [†]	.239 [†]	.013	.352 [†]	-.076	-.275 [†]
Control-in	.096	-.159 [*]	.170 [*]	.207 [†]	.271 [†]	.242 [†]	-.038	.163 [*]	-.123	-.238 [†]
Anger expression index	-.028	-.001	.055	-.121	-.243 [†]	-.110	.158 [*]	.210 [†]	.193 [†]	.283 [†]

Note: Anger-out = anger expressed, Anger-in = anger suppressed, Control-out = attempts to control anger expression, Control-in = attempts to control anger suppression, PSS family = perceived social support by family, PSS friend = perceived social support by friends.

* Level of significance: $p < .05$

[†] $p < .01$