Psychological Evaluations, Referrals, and Follow-up of Adolescents After Their Exposure to Hurricane Hugo

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PROBLEM *There is little understanding of adolescent appraisal of stress and crisis intervention for adolescents who are exposed to major stress such as that of a natural disaster*

METHODS. *A description of the psychological evaluations, referrals, and follow-up assessments made by nurse practitioners (NPs) and a nurse psychotherapist (NPT) of adolescents (N = 507) in two South Carolina high schools who experienced Hurricane Hugo.*

FINDINGS. *The NPs' evaluations concluded that 63 adolescents (12%) exhibited symptoms of psychological distress. The NPs referred 36 of these adolescents to high school counselors for minor distress or school-related problems and 27 for more intensive clinical evaluation by an NPT. Of the 27 adolescents who were referred to the NPT, 10 had symptoms associated with adolescent adjustment reaction, 8 showed symptoms of depression, 5 revealed symptoms of posttraumatic stress disorder, and 4 complained of serious family problems.*

CONCLUSIONS *Based on these data and the mental processes described by these adolescents, the authors propose a model and suggest adolescent appraisal of stress and crisis is a critical issue to consider when intervening with adolescents who are exposed to major stressors, including those associated with a disaster*

Key words: *Adolescent disaster stress, adolescent stress and coping, disaster, psychological distress*

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Nurses must be aware of the unique precipitants and manifestations of stress and crises experienced by adolescents in order to make appropriate mental health evaluations, interventions, and referrals. Since all adolescents are at risk for mental health problems (Blos, 1962, Ladlev & Puskar, 1994; Offer, Ostrov, & Howard, 1981; Rutter, 1979), it is reasonable to conjecture that those faced with a catastrophic event may be at even greater risk. Data about the number and nature of adolescents who require mental health services subsequent to a disaster are very limited. There are no published studies about the mental processes that occur in adolescents following a disaster. Therefore, the researchers embarked upon this study in which nurse practitioners (NPs) and a nurse psychotherapist (NPT) performed psychological evaluations on a large sample of South Carolina adolescents one year after their exposure to Hurricane Hugo.

Theoretical Considerations

Theorists have described *adolescence* as a stage of maturational crisis because of the numerous changes and stressors to which an adolescent must adapt (Peterson, 1988). Teenagers must manage the onset of puberty, develop a sense of identity, and establish peer relationships while simultaneously attempting to separate from parents (Thomas, Shoffner, & Groer, 1988). Scientific and popular literature also confirm numerous *situational crises* and stressors for the youth of this particular generation. Today's youth must confront more violence, dysfunctional families, and technological

stressors than previous generations (Donovan, Jessor, & Costa, 1988; Dryfoos, 1991; Fitzpatrick & Boldizar, 1993; Fuchs & Recklis, 1992; Ladley & Puskar, 1994).

When exposed to a unique situational crisis such as a *disaster*, adolescents may be at high risk for psychological maladaptation (Hardin et al., 1994). Hardin and colleagues showed that adolescents' global mental distress was related significantly to their exposure to Hurricane Hugo. Kinston and Rosser (1974) found that youngsters—especially those with a history of emotional stress, physical illness, or family problems—were at an even higher risk than adults for psychiatric impairment after a disaster.

Suicide is now the third leading cause of death among adolescents.

Selye (1979) and Lazarus and Folkman (1984) explained that the amount and intensity of stressors, and one's *appraisal of stressors*, affect an individual's ability to adapt successfully. Schinke, Schilling, and Snow (1987) suggested that adolescents are ill equipped to cope with stress because they lack the experience to accurately appraise stressful situations.

Adaptation to crises and stressors also is affected by protective variables such as *coping skills, social support*, and *self-efficacy* (Brown, Stetson, & Beatty, 1989; Hardin, Carbaugh, Weinrich, Pegut & Carbaugh, 1992; Hardin, Weinrich, Weinrich, Hardin, & Garrison, 1994; Murphy, 1984). LaMontagne (1987) found that as teenagers mature, their repertoire of coping skills expands; this enables them to change events instead of merely alleviating emotional distress. Abramowitz, Petersen, and Schulenberg (1984) reported that teenagers attempt to avoid stress by dealing with one stressor at a time, thus negotiating change over a long time.

When adolescents fail to appraise crises and stressors in a healthy way, and/or when they do not have adequate protective variables, their maladaptive coping is reflected in distressed and troubled behavior (Mellencamp, 1981; White, 1989). Teens who cannot successfully adapt report symptoms such as depression, anxiety, uncontrollable anger, suicide, and drug use. Suicide is now the third leading cause of death among adolescents (CDC, 1991; Ladley & Pusker, 1994; Shaffer et al., 1990); recent reports indicate that one out of 25 male teens and one out of 10 females have made a suicide attempt (CDC, 1991). White (1989) reported that drug use among youth is as high as 6% and showed that it was increasing annually.

In summary, if an adolescent appraises a stressor positively or as a challenge, uses healthy coping mechanisms and positive social support, and feels self-efficacious, *adaptation* and, ultimately, *mental health* results. Conversely, if an adolescent is taxed with intense stressors that are not appraised, or appraised negatively, and if the adolescent does not use effective protective mechanisms, *maladaptation* and symptoms of *psychological distress* may occur (Selye, 1979; Hyman & Woog, 1982; Lazarus & Folkman, 1984). Studies suggest that 10%–30% of teenagers develop maladaptive symptoms while attempting to adapt to the "normal" maturational crisis of adolescence (Offer et al., 1981). Andrews, Tennant, Hewsor, and Vaillant (1978) showed that, after a disaster, youngsters with poor coping skills and little social support had about a 43% risk for developing psychiatric impairment.

Data about the number and nature of mental health referrals of adolescents subsequent to a disaster are very limited. There are no published studies about the appraisal process that adolescents use subsequent to a disaster. Therefore, this study identified and described mental health evaluations, referral, and follow-up of a large sample of South Carolina adolescents one year after their exposure to Hurricane Hugo. In addition, the study looked in particular at how adolescents appraise crisis situations.

Methods

Sample and Setting

All freshmen from two South Carolina high schools who were exposed to Hurricane Hugo were asked to participate. Sample criteria were that the freshmen read and spoke English and took the Carolina Adolescent Health Project baseline survey (Hardin, Weinrich, Weinrich, Hardin, & Garrison, 1991). Survey results are reported elsewhere (Hardin et al., 1994). A total of 507 freshmen met the sample criteria and voluntarily participated. This was 72% of the freshmen population. The sample was 53% male and 41% white.

Measures

The research team, along with four nurse-practitioner faculty, two NPs, and an NPT designed a Mental Health Assessment (MHA) tool to obtain psychological data. Lego (1984) provided the theoretical basis for the MHA. The MHA assesses behaviors such as drug use, diet and sleep habits, sexual health, and family, social, and school functioning. In addition, the MHA assesses the adolescent's, as well as the professional's, overall rating of the adolescent's mental health. The MHA tool, Parts 1 and 2, is shown in Tables 1 and 2. The MHA, Part 1, is designed to be used by advanced NPs in assessing the psychological functioning of "normal," non-referred adolescents. The MHA, Part 2, is designed to be used by an NPT for an adolescent who is presenting with symptoms of psychological distress.

The MHA, Part I, was piloted on 25 normal teenagers who were not part of this sample; only minor revisions were necessary. The MHA tool, Part 1, seems to be a valid and reliable instrument for assessing non-referred adolescents' psychological functioning. NPs used the MHA, Part 1, to complete evaluations on selected adolescents to determine inter-rater agreement on mental health evaluations, ratings, and referrals. A strength of this study is that the NPs had 96% inter-rater agreement on psychological ratings and referrals. The MHA, Part 2, is offered here for additional validation in future studies with NPTs.

Table 1. The Mental Health Assessment Tool, Part I

I. Demographic Data

Name	Age Sex Race
Best subject:	Worst Subject:
Lives with:	Siblings:

II. Psychosocial Assessment

1. Is there anything you want to talk about or ask about?
2. How are things going at school?
3. How are things going at home?
4. Do you have any problems with feelings? Depression? Sleeping? Appetite? Anxiety?
5. Do you have any questions that you would like to ask about sex? Sexual parts? Sexual problems or diseases? Use of birth control?
6. How much alcohol do you drink per week?
7. Do you smoke marijuana? How much? How often?
8. What other drugs do you use?
9. Do you ever drive while you are high?
10. Do you ever worry that you have a drug or alcohol problem?
11. Have you ever thought about suicide? Would you do it? Plans?

III. Psychosocial Health Rating of NP (1 = poor; 2 = good; 3 = exc)

IV. Psychosocial Health Rating of St (1 = poor; 2 = good; 3 = exc)

V. Psychosocial Referral

0: No referral
1: Minor signs and symptoms; student to take reponsibility
2: Minor signs and symptoms; student to get school counseling;
3: Major signs and symptoms; refer to NPT and mental health services
4: Major signs and symptoms; emergency referral to school nurse, NPT, and mental health services

Note: All students with ratings #2, #3, #4 had a letter sent home stating that the student could benefit from counseling. Students in the #3 category had a copy letter sent from the school nurse to the community mental health agency. Students in the #4 category were immediately seen by the school nurse and/or NPT

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Table 2. The Mental Health Assessment Tool, Part 2

1. Exploration of chief complaint:
2. How does adolescent describe his/her symptoms?
3. Has there been a change in somatic functioning?
   Difficulty sleeping?
   Changes in appetite or weight?
4. When did problem begin?
5. What has happened recently to upset adolescent?
6. Has there been a change in how the adolescent is feeling?
7. Problems with anxiety or depression?
8. Does adolescent have history of substance use or abuse?
   Alcohol? Marijuana?
9. Has adolescent experienced a recent death? If so, who?
   How has loss been handled?
10. Was the adolescent in the area during Hurricane Hugo?
    If so, did he/she experience any damage, injury or loss from the disaster?
11. Does the adolescent have close friend or relative in the Persian Gulf? If so, who? How close are they to the person?
12. Does adolescent identify other types of stressors that are causing concern or worry? Describe.
13. Has the adolescent had suicidal thoughts? If so, when? Would he/she do it? Plan?
14. Describe adolescent's appearance, affect, orientation, mood, ability to concentrate, intelligence.
15. Diagnostic Impression:
16. Recommendations:
17. Referral:
18. Adolescent's Response:

Procedure

NPs conducted interviews and evaluations using the MHA, Part 1, on the study sample (N = 507). Subjects were invited to ask questions or share concerns with the NP. The NP then recommended referrals according to five categories of referral: "0" = no referral, "1" = minor symptoms with instructions for self-care, "2" = minor symptoms with school counseling referral, "3" = major symptoms with referral to an NPT and mental health services, and "4" = emergency symptoms with immediate referral to the school nurse, an NPT, and outpatient mental health services. The NP based the referral category on his/her clinical judgment and the following criteria:

- Students who rated themselves on the psychological health rating as "poor" and/or complained of occasional minor symptoms such as school stress or sadness, but denied alcohol or drug use or suicidal ideation, were categorized as "1" or minor symptoms.
- Students who reported frequent alcohol and/or drug use and frequent stress, depression, or difficulty at home or school were considered a "3" or major risk and referred for mental health follow-up.
- Students who reported suicidal ideation or behaviors were given an emergency referral and taken to the school nurse.

The NPs conducted mental health evaluations over a 12-week period in small clinics established at the high schools. Parents and adolescents were assured strict confidentiality but were told that a letter would be sent home if the NP believed a youngster required further evaluation or referral. All students with ratings #2, #3, and #4 had a letter sent home stating that the student could benefit from counseling. Students in the #3 or #4 category also had a letter sent from the school nurse to the local community mental health agency. Students in the #4 category were seen immediately by the school nurse and/or NPT and given appropriate referral.

An NPT used the MHA, Part 2, to conduct evaluations with all of the sample who received mental health referrals for major symptoms or an emergency. The adolescents' specific symptoms, mental processes, crisis appraisal, and diagnostic impressions and recommendations were recorded.

Analysis of Data

Data from this study included the frequency of categories 3 and 4 psychological referrals and the clinical data obtained in the NPT's evaluations of these subjects. Demographic, school, social support, and economic data also were obtained and analyzed.

Results

NPs Psychological Evaluations

NPs determined that a total of 63 subjects, 12% of the sample, showed symptoms of psychological distress; i.e., they received ratings of "2" or higher. There was no substantive difference in this percentage between the two participating high schools. Of these 63 students, 27(43%) were found to have major psychological symptoms, i.e., they received ratings of "3" or "4." These adolescents were referred to the NPT for more intensive clinical evaluations.

The prototypical post-disaster high school freshman to be referred for major psychological symptoms was a black female, in a general English class, who received a subsidized lunch. No other significant difference in the numbers of boys vs. girls or blacks vs. whites who were referred for symptoms of psychological distress was evident. Neither was there any significant difference in referral rates of students based on various class levels (honors, college-preparatory, general, or remedial).

NPT Clinical Evaluations

Table 3 depicts the NPT's diagnostic impressions for the 27 adolescents with major psychological symptoms. It is important to note that the NPT referred only 7 out of 507 adolescents for mental health treatment. The NPT's clinical judgment was that the preponderance of adolescents' symptoms of psychological distress could be treated by parents or school counselors. The NPT believed that adolescents who had experienced the death of a significant other, or more than one major stressor, seemed particularly vulnerable for symptoms of psychological distress. The NPs were somewhat more conservative; they were more inclined to refer adolescents for potential mental health problems (referring 27 out of 507 adolescents).

The NPT categorized referrals into four major diagnostic categories according to *DSM IV* (APA, 1995): adolescent adjustment reaction, depression, post-traumatic stress disorder, and family problems.

Table 3. Categorization of Adolescents With Major Psychological Symptoms

	Rural H.S.		Suburban H.S.				
	Black		Black		White		Total
	M	F	M	F	M	F	
• AAR		1	1	2	2	4	10
• DEP		2	1		4	1	8
• PTSD	1			1	1	2	5
• FP				3	1		4
Total	1	3	2	6	8	7	27

Note: There were no white adolescents at the rural high school

AAR = Adolescent adjustment reaction
DEP = Depressive symptoms
PTSD = Post-traumatic stress disorder symptoms
FP = Family problems

Adolescent adjustment reaction. Adolescent adjustment reaction is defined as a temporary maladaptive reaction to an identifiable psychological stressor that occurs within three months and persists for no longer than six months (APA, 1995). Ten of the 27 adolescents interviewed by the NPT were given this diagnosis. Specific symptoms experienced by this group included feeling stress, pressure, sadness, anger, failing grades, and irritability. The three major themes identified by these 10 adolescents were problems with the transition to high school, peers, as well as relationships with parents. Nine of the 10 adolescents stated they suffered damage from Hurricane Hugo but felt it was minor and that it did not have an impact on their lives. Eight adolescents described their situation in high school as "overwhelming." Seven experienced failing grades and increased difficulty in academic workload and school sports. Six adolescents reported difficulty in making new friends and confusion about girlfriend/boyfriend relationships. Four identified problems with parents such as feeling as though "my parents would not understand about my grades," "Mom

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won't let me do what I want to do," "my parents do not like my friends," or "Mom does not like me any more." Four adolescents stated they needed "someone to talk to" outside of peer or family relationships.

Depressive symptoms. Eight of the 27 adolescents with major psychological distress were diagnosed with depressive symptoms as identified in the *DSM-IV* (APA, 1995), poor appetite or overeating, insomnia or hypersomnia, low energy, low self-esteem, poor concentration, difficulty making decisions, and feelings of hopelessness. Seven of the adolescents with depressive symptoms stated they could not identify what they were feeling badly about, but just felt "bored" and "stayed tired or tired easily." Six of the eight adolescents with depressive symptoms reported that although their family suffered property damage from Hugo, they felt the storm was "not that bad" and that they "did not think about it anymore."

Two other of the depressed adolescents, however, easily described the losses associated with the hurricane and family problems that were precipitating their depressive symptoms. Billy, a 15-year-old black male who was placed with an abusive grandmother because his mother no longer wanted him, had no other adult in his family with whom he was close. Katie was a 15-year-old white female whose parents both had lost their jobs and were suffering from serious financial problems as a result of Hurricane Hugo. Also, Katie's close friend had died in a car accident the previous summer and she was having difficulty making new friends. Both Billy and Katie were experiencing difficulty sleeping, decreased appetite, nausea, boredom, suicidal thoughts, fatigue, low self-esteem, anger, and failing grades. Billy also was acting out in class.

Post-traumatic stress disorder symptoms. Five of the adolescents with major distress were diagnosed with post-traumatic stress symptoms, which are defined as characteristic symptoms following a psychologically distressing event that is outside the range of usual human experience (APA, 1995). Although the common PTSD symptoms identified by *DSM IV* (APA) were reported by this group, only one of these adolescents identified the hurricane as a major stressor. In addition, all five of these adolescents reported they not only experienced the storm, but also had to deal with additional major stressors in the past two years.

Alex and Cathy's situations clearly illustrate the problems encountered by the teens with post-traumatic stress symptoms. Alex was a 15-year-old black male whose family lost their home and all their possessions in Hurricane Hugo. Without insurance, Alex's family had no resources to rebuild their home and, therefore, were forced to move in with an aunt. After the hurricane, Alex's mother lost her job. Cathy was a 15-year-old white female who claimed that Hurricane Hugo "did not bother" her. However, Cathy stated that she and her family "lost everything" in the storm including their home, clothing, and car. Her family moved in with her mother's boyfriend and his two sons after their home was destroyed. Also, Cathy's mother had divorced and her family had moved twice in the past two years.

Family problems. Four of the 27 referred teens received the diagnosis of *family problems*, which is defined as a family circumstance that is not due to an apparent mental disorder (APA, 1995). All of them reported major stressors in relation to family. Ronnie and Karen's situations are examples of the problems that were present in this group of adolescents. Ronnie was a 15-year-old white male whose parents began fighting frequently in the past year, using abusive language and throwing objects at each other. When the arguments occurred, Ronnie's younger siblings would come to him for protection. Ronnie was afraid that his parents would divorce. Karen was a 14-year-old black female who stated that her mother was yelling at her and her two younger brothers constantly since her parents divorced and her mother had returned to school. Karen was responsible for her young brothers while her mother would go to school all day and would not return home "until midnight smelling of alcohol."

NPT recommendations and follow-up evaluations. Follow-up evaluations were conducted within the next four months on all but one of the 27 adolescents seen by the NPT. The NPT originally had recommended that 12 of the 27 adolescents should speak with their parents, 8 were referred to the school guidance counselor, and 7 were helped to make appointments with the adolescent

unit of the community mental health center. The follow-up interviews indicated that 11 of the 12 adolescents who were encouraged to speak with their parents or guardian said they had done so. One student stated that she preferred to speak with an adult at her church instead of her parents. Five adolescents stated that the referral letter sent to their parents from the researchers helped them to talk with their parents.

Five of the eight adolescents encouraged to see the school guidance counselor followed through on seeing the counselor on a weekly basis. Two adolescents from this group stated they had sought out peer support instead of help from guidance. One student from this group withdrew from school before the follow-up visit was conducted.

Five of the seven adolescents for whom professional counseling at the community mental health center was recommended sought help at least twice. One child's guardian refused to take him to the mental health center; therefore, he sought help for himself in the high school guidance office. One child's mother refused treatment at the mental health center after they recommended individual therapy for the mother as well as family therapy.

Discussion

Level of Symptomatology

Data revealed that 12% of the 507 adolescents who participated in this study evidenced symptoms of psychological distress one year after Hurricane Hugo. That symptoms were picked up in teenagers who had not sought help but had been part of a school-screening project supports Offer et al.'s (1981) argument that 10%–30% of adolescents suffer emotional anguish and could benefit from mental health counseling even though they do not seek help.

The percentage of adolescents found to have distressing psychological symptoms following a disaster is lower in this study (12%) than percentages reported by others. For example, Andrews et al. (1978) found a 43% rate of psychological symptoms, and Gleser, Green, and Winget (1981) showed that among the adolescent victims of the Buffalo Creek flood, 20% reported anxiety and 30% depression. This finding may be attributable to several factors. Perhaps these adolescents denied psychological problems. All but one of these adolescents claimed that the hurricane had *not* been a major stressor in their lives. Or, one might argue that after 12 months, these adolescents no longer perceived the storm as a major stressor. Results support Berlin, Davis, and Orenstien's (1988) conclusion that adolescents cope with stress by reactive distancing from stressful situations. However, Berlin et al.(1988) pointed out that reactive distancing is unhealthy because it prevents adolescents from learning how to handle negative feelings associated with stressful situations.

. . . 12% of the 507 adolescents who participated in this study evidenced symptoms of psychological distress one year after Hurricane Hugo

Two predominant feelings reported by the adolescents with major psychiatric symptoms were depression and anger. This is similar to Murphy (1984) and Hardin and Cohen's (1988) description of adults' long-term reactions to disaster.

The small number (5) of adolescents who were assessed with PTSD symptoms is a surprising finding considering that 30% of adults (Gleser et al., 1981) and up to 43% of children (Andrews et al., 1978) can have PTSD up to 36 months post disaster (Weinrich, Hardin, & Johnson, 1990). Selye (1979) emphasized that stress is additive, and the amount and intensity of stressors affects adaptation. All of the adolescents with PTSD symptoms experienced profound physical damage from the hurricane. In addition, they described many

secondary stressors, such as loss of homes or jobs following the storm. These findings support studies of Nader, Pynoos, Fairbanks, and Frederick (1988) and Hardin et al. (1994) that reported psychological distress was related directly to the level of exposure to disaster.

It is important for mental health professionals to assist adolescents in appraising crises and typical adolescent stressors.

Appraisal

All of the teenagers with major psychological symptoms were confronted with the maturational crisis of adolescents as well as the situational crisis of the disaster. This study's data suggest that these adolescents had difficulty in appraising crises and stressors. They seemed *not* to appraise any stressors or crises situations, including the catastrophic stressor of Hurricane Hugo. They explained that they had felt "overwhelmed" and identified numerous situations they found to be stressful. Schinke et al. (1987) suggested that adolescents do not have the experience to accurately appraise stressful situations.

As a way to describe the relationships among concepts in this study, the researchers developed the model shown in Figure 1. This conceptual model suggests "appraisal" is the central issue between crises and adaptation. Three types of adolescent appraisal of stressors are possible: positive, negative, and failure to appraise. As this figure illustrates, adolescents who fail to appraise the impact of stressors run the risk of a decreased ability to cope, failure to utilize available support systems, and a decreased sense of self-efficacy. Failure to appraise the impact of situational crises and stressors in this study resulted in maladaptive psychological symptoms such as depression, anxiety, anger, suicidal ideation, fatigue, difficulty concentrating, and interpersonal difficulties. Theoretically, positive appraisal can lead to healthy coping, increased self-efficacy, and mobilization of support leading to adaptation and mental health.

Appraisal: A critical point of intervention. Perhaps these adolescents, high school freshmen, had little experience appraising stressors, had not yet developed an adequate repertoire of coping skills, and were therefore unable to cope with the stressors brought on by adolescence and a disaster. These results indicate that it is important for mental health professionals to assist adolescents in appraising crises and typical adolescent stressors (Schinke et al., 1987). Figure 1 suggests there may be a "critical point" of intervention for adolescents who are experiencing maturational and situational crises and stressors. Mental health professionals who are sensitive to the need for appraisal may have ideas about the influence of appraisal on adaptation and maladaptation.

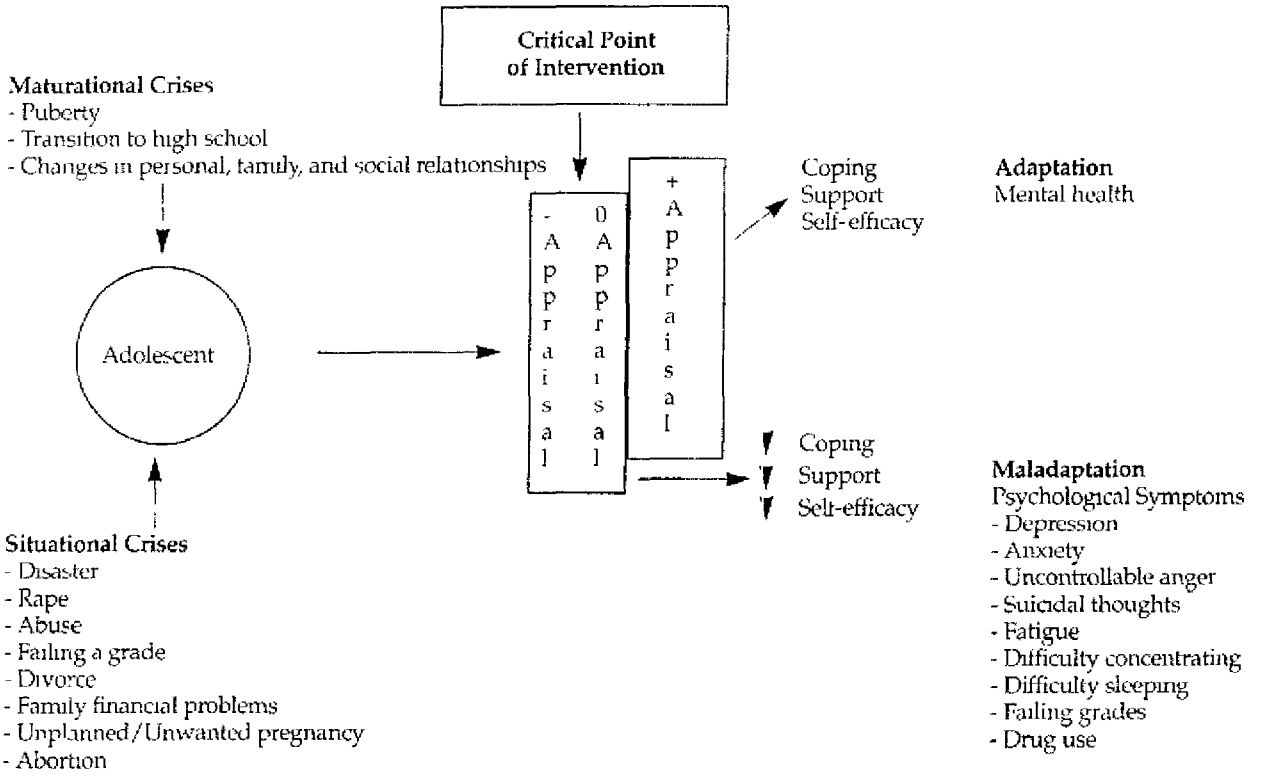
Limitations of the Study

One of the limitations of this study is that evaluations were performed one year after Hurricane Hugo. In addition, there was no control group so that the researchers cannot be sure these adolescents were indeed responding to the disaster. Also, findings may not be generalizable to adolescents from other regions or who experience different crises. That one NPT performed the clinical evaluations following the NPs referrals is both a strength and a weakness since reliability is enhanced but subjective bias may have occurred. However, the researchers believe that these data provide a solid base from which future investigations can compare adolescents who have and have not been exposed to a major disaster.

Conclusion

The investigators believe these findings demonstrate that NPTs can work with NPs and high school counselors in assessing and referring adolescents with symptoms of

Figure 1 Model of Adolescent Stress, Appraisal, and Coping



psychological distress. The researchers recommend that future studies utilize the Mental Health Evaluations Tool both on adolescents who have been exposed to a disaster and on a control group. The model presented deserves additional testing, validation, and/or revision. For example, it would be useful to study adolescents' appraisal immediately after a crisis, and then longitudinally, to determine how time affects this process and adaptation. In addition, interventions aimed at enhancing adolescents' appraisal of crises and stressors could be designed and tested. Finally, future research could determine if the four categories of major psychological symptoms reported here occur in other populations of adolescents who have not experienced the situational crisis of a disaster

Acknowledgements. This research was funded by Grant #R01MH47551 by the National Institutes of Mental Health

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