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ORIGINAL PAPER

# Coping Resources as Explanatory Factors of Stress Reactions During Missile Attacks: Comparing Jewish and Arab Adolescents in Israel

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**Abstract** The aim of this study was to explore coping resources as explanatory factors in reducing emotional distress of adolescents in an acute stress situation. We compared two ethnic groups—Jewish and Arab-Bedouin Israelis—during intensive missile attacks in January 2009. Data were gathered from 138 Israeli-Jews and 84 Israeli-Arab Bedouins, 12–18 years old, who filled out self reported questionnaires among which state anxiety, state anger, and psychological distress (SPD) were measures of emotional distress, and sense of coherence (SOC) and hope index served as measures of coping resources. Findings indicated no differences between the two groups on state anxiety, SPD and hope levels. Arab Bedouins reported higher levels of state anger and lower levels of sense of coherence. The coping resources, however, explained the stress reactions differently among the two groups. While SOC made a major contribution in explaining stress reactions among Jewish adolescents, hope index explained stress reactions only for the Arab group. The findings are discussed against the background of the salutogenic theory and the cultural differences between the two ethnic groups.

**Keywords** Adolescents · Political violence · Coping resources

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## Introduction

The aim of this study was to compare coping resources as explanatory factors of stress reactions of adolescents from two different ethnic groups in an acute stress situation of intensive missile attacks. We examined coping resources of sense of coherence (SOC) and hope as potential explanatory factors of stress reactions, namely, state anxiety, state anger and psychological distress. We compared two ethnic groups—Jews and Bedouin Arabs—along these dimensions of stress reactions and specifically examined how sense of coherence and hope explains stress reactions in each group while controlling for several demographic characteristics.

### Well Being of Adolescents in Political Violence Areas

Literature regarding psychological and behavioral effects of terrorism and wars on adolescents includes a wide spectrum of outcomes ranging from mild stress reactions to a variety of problems such as anxiety, depression, somatic complaints, aggressive behavior and anger (e.g., Braun-Lewensohn et al. 2009a; Hoven et al. 2002; Solomon et al. 2005). Research in different domains of exposure to potentially traumatic experiences has shown that similar exposure does not necessarily lead to similar measures of psychological problems among individuals (Braun-Lewensohn et al. 2009a). Several studies have shown that exposure is not a dominant factor in explaining different stress reactions during or following political violent events (e.g., Braun-Lewensohn et al. 2009b; Pfefferbaum et al. 2001). A series of studies which were carried out in Israel indicated that the majority of children and adolescents show resilience, cope well independently and do not suffer major emotional problems when facing political violence

(Zeidner 2005; Sagy and Braun-Lewensohn 2009). However, some of the research literature has indicated that individuals who have been exposed to terror and to war tend to be vulnerable to different psychological and social problems (Joshi and O'Donnell 2003).

The conceptual framework of our study is the salutogenic theoretical approach of coping with stress (Antonovsky 1987), which emphasizes the investigation of the sources of coping that enable people to face acute stress situations and stay well. Thus, in our study we aimed to deepen our understanding of the process in which psychological resources can contribute to adolescents' well being in an area of violent political conflict, during a time of intensive missile attacks. We focused our study on two potential resources, sense of coherence and hope, which could be significant moderators in reducing stress reactions (Bleich et al. 2003; Braun-Lewensohn et al. 2010b; Sagy and Braun-Lewensohn 2009; Seginer 2008).

## Sense of Coherence

Antonovsky's (1987) theoretical salutogenic model indicates mediating relationships between exposure to stress and stress related reactions by the personal orientation of sense of coherence. SOC is a global orientation, an enduring tendency to see the world as more or less comprehensible, manageable, and meaningful. The SOC, according to the model, has implications for individual responses in various kinds of stressful situations. Hence, SOC affects how individuals perceive the world and the events that happen to them, as well as the extent to which they perceive these events as manageable (Antonovsky 1987). The salutogenic model suggests that an individual with a strong SOC is less likely than one with a weak SOC to perceive many stressful situations as threatening, and, thus, anxiety provoking. Following the salutogenic approach, SOC is assumed to mediate relationships between exposure to political violence and stress symptoms. Given their tendency to perceive the world as meaningful and manageable, individuals with a strong SOC will be less likely to feel threatened by events of war and missile attacks and less vulnerable after these have occurred. People with a weak SOC may react with more stress related symptoms and/or maladaptive coping (Hogh and Gemzoe-Mikkelsen 2005). A review by Eriksson and Lindström (2006), which examined 458 scientific publications that used the sense of coherence to assess people's reactions to stress, revealed that SOC was linked to psychological problems or health measures, including psychological aspects. However, SOC seems to be a better predictor of stress and health related symptoms for those with stronger SOC while its role for those with moderate or low SOC is unclear.

Antonovsky (1979) further argued for the importance of a stable culture in providing individuals with a strong sense of coherence. Yet in the case of a society in change, maintenance of a sense of coherence is dependent on the flexibility with which people approach and respond to new demands (Antonovsky 1987).

Few studies have investigated the question of cultural differences in SOC levels. Bowman (1996) investigated Anglo-Americans and Native Americans and supported Antonovsky (1987) claim that people from totally different cultures may attain the same levels of sense of coherence. Furthermore, the association between strong SOC and healthiness was supported in both cultures as well as in other studies which compared Chinese, Japanese and Americans (Bowman 1996; Lee et al. 2002).

## SOC During Adolescence

SOC is a construct that develops differently according to environmental characteristics and life experiences (Sagy and Antonovsky 1999). The role of SOC in earlier age groups fluctuates more. "The adolescent, at the very best, can only have gained a tentative strong SOC, which may be useful for short-range prediction about coping with stressors and health status" (Antonovsky 1987, p. 107). However, adolescence is a crucial developmental stage. During these years, youth develop advanced cognitive and emotional mastery, enabling them to take perspective, plan ahead and see future consequences of an action, and manage emotions more effectively, all of which facilitate their abilities to deal with sources of conflict and stressful events in a variety of contexts (Celestin-Westreich and Celestin 2005). Studies on adolescents have indicated that during adolescence SOC might contribute to moderating stress experiences and therefore, it seems to have a protective role even during adolescence, similar to the 'mature' adult SOC (Antonovsky and Sagy 1986; Braun-Lewensohn et al. 2010b; Sagy 1998, 2002).

## Hope

Sense of hope involves emotional elements of expectation as well as cognitive and deductive thinking to pursue new ideas and solutions (Lazarus 1991; Snyder 1994; Staats 1989). Hope is based on high cognitive processing, requiring mental representations of positively valued abstract future situations and more specifically, it requires setting goals, planning how to achieve them, use of imagery, creativity, cognitive flexibility, mental exploration of novel situations, and even risk taking (Breznitz 1986; Clore et al. 1994; Fromm 1968; Isen 1990; Lazarus 1991; Snyder 1994, 2000). The affective component of

hope is considered a consequence of cognitive elements and may contain positive as well as negative features since individuals may realize that the achievement of their goal may involve struggles, costs, and endurance (Snyder1994, 2000). The combination of cognition and affection allows for the development of adaptive reactions to stress (Freedy and Hobfoll 1994). According to this perception, individuals who maintain hope are those who will appraise the situation as challenging (Seginer 2008). Furthermore, research on hope has revealed that the presence of hope indicates the existence of social support (Thoits 1994) and increases the individual's sense of control over life (American Psychological Association 1996). Thus, hope is a potential factor which enables individuals to cope well and achieve well being when facing stressful events in general and during political violent events (Landau 1998; Landau et al. 1998; Sami and Kraus 1985).

Besides looking at hope as psychological in nature one can see it as a social-environmental variable as well as a cultural factor which may exert a significant impact (Sagy and Adwan 2006). Thus, hope could have individualistic as well as collective components (Staat 1989). In a recent study which compared Palestinian and Israeli adolescents on their hopes with regards to the ongoing conflict, the Palestinian group expressed a higher level of collective hopes than their Israeli counterparts. This is in congruence with other studies concerning collectivism that found similar results in both groups—namely, the orientation toward collectivism among Arab-Palestinian youths was much more prominent than among Israeli-Jewish adolescents (Sagy and Adwan 2006).

## The Role of Demographic Characteristics: Gender, Age, Socio-Economic Status

The moderating role of demographics, such as gender and age, on youngsters' psychological outcomes is often investigated. Most studies confirm the importance of gender, as girls generally report more PTSS and internalization of difficulties compared to boys, who report more externalizing problems and risk-taking behavior (Hoven et al. 2002; Pat-Horenczyk et al. 2007; Pfefferbaum et al. 2001).

The research also tends to find that age moderates the extent of stress reactions in the wake of terror attacks. Younger children appear to exhibit more severe psychopathology such as PTSS, somatic complaints, depression and distress than older children or adolescents (Hoven et al. 2002; Solomon et al. 2005). However, the effects of age remain unclear. Other studies which focused on ongoing exposure to terrorist attacks found no age effects (Braun-Lewensohn et al. 2009a; Solomon et al. 2005).

The role of socioeconomic status as a differential factor among adolescents is well documented. It appears that adolescents who come from low SES have fewer psychological resources for meeting the requirements of their challenging environment (Pearlin and Schooler 1978). Several studies indicated different challenges of stress for youths who come from a lower socio economic status (Evans 2004; Grant et al. 2006) as well as relationships between SES and stress (Goodman et al. 2005). Generally, adolescents having a low SES reported lower levels of perceived health and more psychosomatic symptoms than youngsters from a higher SES (Piko and Fitzpatrick 2001; Berntsson and Kohler 2001). One of the reasons for being more vulnerable is that low SES adolescents are assumed to lack psychological and/or other resources and therefore their ability to cope with threats decreases (Finkelstein et al. 2007).

## Research Background

This study was conducted during 1 month, January 2009, while southern Israel was under missile attack on a daily basis. Adolescents who had never before been exposed to such experiences, for the first time in their lives were hearing sirens and were experiencing missiles barrages several times a day for about a month. Hundreds of missiles fell on private homes, residential buildings, schools, kindergartens and in open areas. Three civilians were killed and about 700 injured during these attacks, among them children and adolescents [http://he.shvoong.com/newspapers/israel/ (retrieved May 2009)].

The Jewish-Israeli adolescents of the Negev belong to the majority group of the country. Israeli Jews have adopted behavioral norms which characterize a Western society (Mikulincer et al. 1993). As part of an individualistic society, Israeli-Jewish youths might focus on rights more than duties, concern for themselves, personal autonomy and self-fulfillment to promote their individual goals (Oyserman et al. 2002; Oyserman 2006).

The Bedouin of the Negev are a minority group. They are Muslim Arabs who have inhabited the Negev desert since the fifth century CE. Traditionally, they have been organized into nomadic or semi-nomadic tribes; however, in the past half century, they have experienced a rapid and dramatic transition. Approximately half of the population has been resettled into seven urban-style settlements by the government. This move from traditional semi-nomadic life to urban settlements has had social and economic consequences. For example, the population is characterized by low income levels and the settlements provide fewer services to their residents (compared to Jewish settlements) (Abu-Saad 2003; Abu-Saad et al. 2004; Lithwick 2003), which places them at greater risk (Guo et al. 2002). The

identity of this minority is complex as well. On the one hand, they are separated from other Arab countries, but, on the other, as citizens of Israel they have not been integrated into Israeli society (Abu-Saad 2006).

The growing changes in this traditional society have led their youth to become closer to Israeli modern and Western society, but there has also been an attempt by the elders to conserve the Bedouin traditions. For example, most parents have been interested in maintaining and strengthening the religious traditions and customs among the younger generation (Globman and Katz 1998).

### Comparing Israeli Jewish and Arab Adolescents During Events of Political Violence

Very few studies have related to differences in coping resources and stress reactions between Jews and Arabs who are citizens of Israel. In recent studies which compared Israeli Jewish and Arab adolescents in northern Israel during the Second Lebanon War and during ongoing terror attacks, no significant differences were found between the two groups in various stress related reactions. It appears that the stressful situation was so overwhelming that it perhaps reduced cultural differences (Braun-Lewensohn et al. 2010a; Cohen and Eid 2007). When looking into the significance which each cultural group attributed to coping strategies, the overall trend was similar as well. While problem solving coping shielded against distress, emotional coping elicited responses of stress (Braun-Lewensohn et al. 2010a). However, some differences emerged in coping strategies: Sharing feelings, for example, was related to more distress only for Jewish adolescents (Cohen and Eid 2007).

In this study, we sought to explore similarities and differences among Arab-Bedouins and Jewish Israelis in times of threat of missile attacks. We found no previous studies which compared these specific populations of Israeli Bedouin and Jewish adolescents in coping with stressful events of political violence.

### Research Questions and Hypotheses

1. Are there differences between Israeli Jews and Arab Bedouins in levels of stress reactions (state anxiety, state anger and psychological distress)? Based on previous studies we assume that both Jewish and Arab adolescents react similarly to the acute stressful situation (Braun-Lewensohn et al. 2010a).
2. Are there differences between Jews and Arab Bedouins on levels of sense of coherence and hope? Since Bedouin society is constantly changing and since a significant factor in building strong SOC is cultural stability, we assume that Arab Bedouins will report lower SOC compared to their Jewish counterparts (Antonovsky 1979, 1987). We assume, however, that there will be no differences in hope levels among the two groups. Since hope involves both individualistic and collectivistic norms as well as affective and cognitive dimensions, we expect Jews to have more individualistic hopes and Bedouins to have more collectivistic hopes (Sagy and Adwan 2006).
3. What are the roles of demographic indicators of ethnicity, gender, age, parents' education and parents' employment as well as exposure in explaining stress reactions? Based on a previous study which compared Jews and Arabs in the north during the Second Lebanon War, no major effect is expected for ethnicity (Braun-Lewensohn et al. 2010a). Gender and age are expected to play a role in explaining stress reactions. Females and younger adolescents are expected to report more symptoms of stress (Hoven et al. 2002; Pat-Horenczyk et al. 2007). Regarding socio-economic indicators (SES) of parents' education and employment, those who belong to a lower SES are expected to report more stress (Finkelstein et al. 2007). The exposure variable is expected to play a minimal role in relation to stress reactions (Braun-Lewensohn et al. 2009a, b).
4. What are the roles of the coping resources, sense of coherence and hope, in explaining stress reactions in each group? Previous studies have shown positive correlation between sense of coherence or hope and reduced distress (i.e., Hobfoll et al. 2007; Sagy and Braun-Lewensohn 2009). According to the salutogenic approach, we expect each of the coping resources to contribute to the explanation of stress reactions in both groups (Bowman 1996; Braun-Lewensohn et al. 2010b; Lee et al. 2002).

## Method

### Participants

Two hundred and twenty-two teenagers (138 Jews and 84 Bedouin Arabs) living in southern Israel participated in the study. No inclusion or exclusion criteria were used apart from age (12–18). Demographic characteristics of the sample are presented in Table 1.

### Procedures

Data were collected by questionnaires during January 2009, when hundreds of missiles were fired on southern cities and communities. Six Jewish and two Bedouin

**Table 1** Demographic characteristics of sample

| Characteristic | Jews | | Arabs | | $\chi^2$ |
|---|---|---|---|---|---|
| | No. | % | No. | % | |
| Age | | | | | |
| Mean (SD) | 15.40 | (1.23) | 15.92 | (1.27) | |
| No. of siblings | | | | | |
| Mean (SD) | 2.07 | (1.30) | 7.96 | (3.58) | |
| Range | 0–8 | | 2–19 | | |
| Gender | | | | | 3.44 |
| Males | 50 | 36.2 | 20 | 23.8 | |
| Females | 86 | 62.3 | 64 | 76.2 | |
| Father's education | | | | | 60.51*** |
| Did not study | 2 | 1.0 | 12 | 5.8 | |
| Elementary School | 1 | .5 | 21 | 10.1 | |
| High School | 43 | 20.7 | 21 | 10.1 | |
| Non academic diploma | 31 | 14.9 | 6 | 2.9 | |
| Academic degree | 55 | 26.4 | 16 | 7.7 | |
| Mother's education | | | | | 63.84*** |
| Did not study | 4 | 1.9 | 29 | 13.6 | |
| Elementary School | 6 | 2.8 | 16 | 7.5 | |
| High School | 29 | 13.6 | 15 | 7.0 | |
| Non academic diploma | 31 | 14.6 | 10 | 4.7 | |
| Academic degree | 61 | 28.6 | 12 | 5.6 | |
| Father's employment | | | | | 61.11*** |
| Employed | 122 | 57.8 | 35 | 16.6 | |
| Unemployed | 6 | 2.8 | 32 | 15.2 | |
| Student | 1 | .5 | 6 | 2.8 | |
| Deceased | 3 | 1.4 | 6 | 2.8 | |
| Mother's employment | | | | | 72.44*** |
| Employed | 108 | 50.7 | 21 | 9.9 | |
| Unemployed | 16 | 7.5 | 54 | 25.4 | |
| Student | 6 | 2.8 | 3 | 1.4 | |
| Deceased | 2 | .9 | 3 | 1.4 | |

***$P \leq .001$

adolescents as well as an Arab psychologist were recruited to administer self reported questionnaires to adolescents in their homes or shelters. All participants were informed that the researchers were interested in their experiences, and anonymity was emphasized. Participation was voluntary, and permission from parents was received.

Each group received a questionnaire in its own native tongue. Both versions of the questionnaires (Hebrew and Arabic) have been used in research prior to the present research. All recruited assistants were supervised by the researchers and similar administrative procedures were used across the groups. The involvement of the administrators of the questionnaire was minimal and included only explanations of words which participants didn't understand.

For each scale those who did not fully complete the questions which were part of the scale were removed from the analysis.

## Measurements

*Exposure to missile attacks* was measured by five yes/no questions. Physical exposure to missile attacks was assessed by three questions: whether a missile had fallen on the respondent's home, in the respondent's neighborhood, or whether the respondent had been hurt by a missile. Relational exposure included questions about knowing someone who had been hurt by a missile and knowing someone whose house had been damaged. The mean of the five answers was computed to create an 'exposure index'.

*Sense of Coherence* (SOC) (Antonovsky 1987) was measured using a series of semantic differential items on a seven-point Likert-type scale, with anchoring phrases at each end. High scores indicate a strong SOC. An account of the development of the SOC scale and its psychometric properties, showing it to be reliable and reasonably valid, appears in Antonovsky's writings (1987, 1993). In this study, the SOC was measured by the short form scale consisting of 13 items, which was found highly correlated to the original long version (Antonovsky 1993). The scale includes such items as: "Doing the things you do everyday is"—answers ranging from (1) "a source of pain and boredom" to (7) "a source of deep pleasure and satisfaction." In the present study, the mean score of the scale was used and Cronbach's alpha was .65 for the Jewish group and .59 for the Arab group.

*Hope Index* (Staats 1989), is constructed as the interaction of wishes and expectations and includes items of hopes referring to *self* and to *others* or to broad global concerns. Some items, such as "to be competent" and "to be happy" reflect one's hope for oneself while other items reflect hope concerning global issues, such as "peace in the world" and "justice in the world." Participants were asked to independently rate the extent to which they would wish for a particular future occurrence and the extent to which they would expect this to occur. Responses were rated on a scale of zero (*not at all*) to five (*very much*). The multiplication of the *wish* value by the *expect* value generated the measure of hope. The Cronbach's alpha of the hope index was .86 for the Jewish sample and .95 for the Arab sample.

*State Anxiety* (Spielberger et al. 1970, Hebrew translation: Teichman 1978) was used in order to assess adolescents' anxiety. The Hebrew translation proved to be reliable, valid and equivalent to the English State Anxiety Inventory (Teichman 1978). This scale consists of eleven items on a four point Likert scale. Examples of questions are: I feel peaceful, I am afraid of disasters, I am worried

etc. The mean score was used and Cronbach's alpha reliability was .86 for the Jewish group and .78 for the Arab group.

*State Anger* (Spielberger et al. 1970), Hebrew translation Teichman 1978) was used in order to assess adolescents' anger. The Hebrew translation proved to be reliable, valid and equivalent to the English State Anger Inventory (Teichman 1978). This scale consists of six items on four point Likert scale. Examples of questions are: I am angry, I want to scream at someone, I feel frustrated etc. The mean score was used and Cronbach's alpha reliability was .85 for the Jewish group and .84 for the Arab group.

*Psychological Distress* is a six-item psychosomatic symptom scale, referring to frequency of occurrence of familiar psychological symptoms. The scale was developed in Hebrew (Ben-Sira 1979) and has been used in a number of studies with satisfactory psychometric properties (Ben-Sira 1988). Five of the items are culled from Langer's psychological-equilibrium index (Langer 1962): pounding heart, fainting, insomnia, headache and sore hands. The scale was elaborated by Sagy for use in a population of children (Sagy and Dotan 2001). Some of the symptoms were modified (for example, stomachache instead of sore hands), and one item (nervous breakdown) was deleted. In this format, the questionnaire included five items and was scored on a scale of one to four. In the present study the mean score was used and Cronbach's alphas were .74 for the Jewish group and .75 for the Arab group.

We created one comprehensive scale, namely 'stress reactions', which included the three outcome scales- state anxiety, state anger and psychological distress. Factor analysis was run and one factor emerged with total variance of 59.04%. Cronbach alpha for the new scale was .87.

The adolescents also filled out a *demographic* questionnaire which included questions regarding their gender, age, ethnicity (Jewish, Arab), parents' education and parents' employment (SES).

## Results

Table 2 presents means, SD and t values of the study's variables according to the two ethnic groups. Regarding stress reactions (state anxiety, state anger and psychological distress), both group (Jewish and Arab adolescents) frequencies of state anxiety and psychological distress were towards the higher end of the scale and no significant differences were found among these groups. Regarding state anger, the Arab group scored towards the higher end of the scale, and was significantly different in this dimension from the Jewish group. No significant difference was shown on the global scale of stress reactions.

**Table 2** Means, SD and *t* values of the study variables

| | Jews | | Arabs | | *t* value |
|---|---|---|---|---|---|
| | *M* | SD | *M* | SD | |
| Stress reactions | −.15 | .97 | .11 | .99 | −1.68 |
| State anxiety | 2.48 | .65 | 2.54 | .57 | −.58 |
| State anger | 1.85 | .69 | 2.17 | .80 | −2.98* |
| Psychological distress | 2.12 | .73 | 2.08 | .73 | .42 |
| Psychological resources | | | | | |
| Sense of coherence | 4.22 | .72 | 4.02 | .81 | 3.78*** |
| Hope | 14.78 | 3.84 | 15.96 | 6.56 | −1.75 |
| Individual | 17.51 | 4.26 | 16.14 | 6.22 | 1.74 |
| Collective | 9.66 | 5.25 | 15.07 | 7.79 | −5.71*** |
| Exposure to missile attacks | .23 | .49 | .11 | .20 | 3.59*** |

*$P < .05$; **$P < .001$

Sense of coherence and hope were measured as potential psychological coping resources which could help adolescents cope during the missile attacks. Among these resources, sense of coherence was significantly higher among the Jewish group. Hope, in contrast, showed no significant difference among the two groups. However, significant differences were shown on collective hope, with the Arab group scoring higher on this dimension.

Regarding exposure, Jewish adolescents reported significantly more exposure than their Bedouin counterparts.

### Effects of Ethnicity, Gender and Age on 'Stress Reactions'

Between group analysis of variance was conducted to explore the impact of gender, age, ethnicity and interactions-ethnicity*gender, ethnicity*age, gender*age, ethnicity*gender*age. To compute the analysis two age groups were created- younger (12–15) and older (16–18) adolescents.

There was no statistically significant main or interaction effect for the demographic variables: ethnicity [$F(1, 161) = 2.94$, $P = .09$]; gender [$F(1, 161) = .182$, $P = .67$]; age [$F(1, 161) = .75$, $P = .39$]; ethnicity*gender ($F(1, 161) = .49$, $P = .48$]; ethnicity*age [$F(1, 161) = .81$, $P = .37$]; gender*age ($F(1, 161) = .46$, $P = .50$]; ethnicity*gender*age [$F(1, 161) = 1.16$, $P = .28$].

### Correlations Between the Study's Variables

In order to explore significant relationships between 'stress reactions' and the study's continuity variables-SES of parents' education and parents' employment as well as an exposure variable-Pearson correlations were conducted for each ethnic group separately. Results are presented in Table 3.

**Table 3** Correlation matrix for the study variables for each ethnic group

| | Jews | | | | | | | | Bedouin Arabs | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Stress reaction | – | | | | | | | | – | | | | | | | |
| Fathers' education | −.02 | – | | | | | | | −.07 | – | | | | | | |
| Mothers' education | −.10 | .39** | – | | | | | | .02 | .44** | – | | | | | |
| Fathers' employment | −.09 | −.01 | −.01 | – | | | | | −.11 | −.08 | .03 | – | | | | |
| Mothers' employment | −.08 | −.14 | −.12 | .28** | – | | | | −.02 | −.34** | −.11 | .42** | – | | | |
| Exposure | .05 | −.12 | −.10 | −.05 | −.01 | – | | | .00 | .26* | .21 | .05 | −.10 | – | | |
| Sense of coherence | −.38** | .12 | −.04 | .04 | .01 | .12 | – | | .12 | −.09 | −.10 | .01 | .09 | −.10 | – | |
| Hope | −.07 | −.10 | .23* | .22* | −.07 | .04 | −.11 | – | −.38* | −.10 | −.08 | .08 | .12 | −.03 | −.10 | – |

*$P < .05$; **$P < .01$

The only significant relationship in the Jewish group emerged between 'stress reactions' and sense of coherence. In the Arab Bedouin group the only significant relationship emerged between 'stress reactions' and hope.

### Explanatory Factors for 'Stress Reactions' in each Group

Based on the two way between ANOVA and the correlation matrices, bivariate regression analyses were computed. For each group the dependent variable was 'stress reactions' while the independent variables were sense of coherence for Jews and hope for Arab Bedouins. Results show that sense of coherence contributed 14.7% ($\beta = -.38$, $P \leq .001$) to the explained variance of the 'stress reactions' in the Jewish group and hope contributed 14.5% ($\beta = -.38$, $P \leq .05$) to the explained variance of 'stress reactions' in the Bedouin Arab group.

## Discussion

Our study aimed to investigate stress reactions and psychological resources of two ethnic groups in Israel, Jews and Arab Bedouins, while facing an acute stress situation of missile attacks. We further aimed to explore the role of demographics as well as two psychological resources, sense of coherence and feelings of hope, in explaining stress reaction outcomes among these two different groups.

First, we asked about similarities and differences between the two groups in the way they react to the acute stress situation. We explored this by looking at stress reaction outcomes of state anxiety, state anger and psychological distress. We found no differences between the groups on reported levels of anxiety, psychological distress and global scale of 'stress reactions'. These findings are similar to findings from the Second Lebanon War as well as data collected during ongoing terrorist attacks in which no differences in stress reactions appeared between northern Israeli Jewish and Arab adolescents (Braun-Lewensohn et al. 2010a; Cohen and Eid 2007).

In spite of the similarities in anxiety and distress responses between the two southern ethnic groups, a meaningful difference appeared in the reported state anger. Arab Bedouin adolescents reacted more angrily than their Jewish counterparts during this period. This finding can be explained by the frustrating and confusing situation which this group of Israeli Bedouin had to face. On the one hand, these adolescents were living under the threat of the missiles which fell on their Bedouin city (Rahat). On the other, they felt angry with the Israeli leadership who had directed the Israeli army to bomb Gaza. Some of the Bedouin adolescents had close relatives in Gaza who were hurt. Moreover, the Arab-Bedouin sector in southern Israel is underprivileged in many areas (Fischl and Sagy 2005), especially in educational opportunities (Abu-Saad et al. 2004). This might contribute to anger and frustration not only in times of acute threat, but also during normal times.

Our second hypothesis related to the coping resources of the participants. We expected differences in sense of coherence (SOC) levels. Indeed, sense of coherence was lower among Arab Bedouin adolescents compared to their Jewish counterparts. This could be explained on the basis of cultural background as the Bedouins are still considered a nomadic society. Although these adolescents had been born in a city and had never migrated, the narrative of this society expresses instability and inconsistency. These values contradict the basic rationale of SOC, especially relating to the comprehensibility component of the concept. The basics of comprehensibility rest on logical consistency and stability. The Bedouin society, in turn, experiences more transformations which are part of their lives (Abu-Saad et al. 2004).

Furthermore, living in a society in transition, these adolescents might have had difficulty in maintaining high SOC due to contradictory demands in responding to

complex intensive changes (Antonovsky 1987). On the one hand, there are demands to become more Western and to acclimate to modern society, while on the other, they are required to maintain religious traditions and values (Globman and Katz 1998).

Another explanation for the difference in levels of SOC between the two groups could relate to the lower socio-economic status among the Arab Bedouins of the Negev. Lower SES and economic difficulties were found in some studies to be related to lower SOC among adults (Lundberg and Peck 1994; Poppius et al. 1999).

The picture is completely different with regard to the results of feelings of hope. Hope is a concept of expectation for better lives without the need to see the world as coherent or manageable. Moreover, the hope concept which was introduced to adolescents in this study involves collective norms as well as individualistic norms. In spite of the fact that no significant differences were indicated in the hope domain, looking into its sections, Arab adolescents reported significantly higher levels of collective hope compared to Jews. These results are congruent with a study which was conducted among Israeli and Palestinian youths (Sagy and Adwan 2006). The results support previous studies in which Israeli-Arab youth showed more collectivist tendencies while Jews adopted more individualistic norms which characterize a Western society (Mikulincer et al. 1993; Sagy et al. 2001).

Our third question related to the role of demographics and exposure in explaining stress reactions. As expected, ethnicity indeed had no effect in explaining stress reactions. These results support our previous finding in which ethnicity had no effect on stress reactions among Jewish and Arab adolescents in northern Israel during the Second Lebanon War (Braun-Lewensohn et al. 2010).

We also expected gender and age to have significant effect on stress reactions. Contrary to our hypotheses, these demographic characteristics also had no effect on stress reactions in our sample. Regarding age, previous findings are not consistent and our study joins a series of other studies in which age had no effect on stress during politically violent events (e.g., Braun-Lewensohn et al. 2009a; Solomon et al. 2005). Our last demographic variables, parents' education and parents' employment, which are considered as SES were expected to be related to stress reactions. Although SES characteristics of our samples (Jews and Bedouins) are significantly different and one might expect differences in the ability to cope due to major socio-economic differences and difficulties (Finkelstein et al. 2007), it seems that during the acute situation of missile attacks these demographics, at least in our samples, do not have any effect.

Regarding exposure, our study continues a line of studies which claim that the exposure to the event per se is not the most important variable which explains stress during violent events (Braun-Lewensohn et al. 2009a, b; Pfefferbaum et al. 2001). Like other studies, our study also suggests that looking into more dynamic and personal variables could give a clearer picture of which individuals cope better with potentially traumatic events.

Our main question, however, was the contribution of coping resources to reducing stress reaction symptoms. Based on the salutogenic model (Antonovsky 1987), we hypothesized that the two resources- sense of coherence and hope—would explain the wellbeing of adolescents in both groups. Thus, adolescents with a stronger sense of coherence and higher levels of hope would report fewer stress reaction symptoms, among the Jewish as well as the Bedouin samples. However, in contrast to these hypotheses, significant differences emerged among the two ethnic groups in the patterns of contribution of the two coping resources to the explanation of stress reactions. It appeared that in each ethnic group the contribution factor was different.

While in the Jewish adolescent group, sense of coherence was the stronger contributor to wellbeing, among the Arab group it had no significant relationship to 'stress reactions'. Sense of coherence is based on one's comprehension of the world as predictable, understandable and manageable. In Bedouin society, whose cultural roots are based on nomadism and instability, coping with life's stressors may be perceived in a different way. Thus, perhaps Antonovsky's concept, which rests on stability and consistency as contributing factors to a strong SOC (Sagy and Antonovsky 1999) might better suit a Western oriented culture.

On the other hand, the contribution of hope for wellbeing was mostly significant among the Arab adolescents but not among the Jewish youngsters. It appeared that among Bedouin adolescents, living in a religious and traditional society, the concept of hope was connected to their stress reactions much more than the cognitive SOC. The perception that God would help them and would be with them was related to their feelings of anxiety and distress more than the perception of the world as a coherent environment. Furthermore, being a collectivist society, the inclusion of collective characteristics of Bedouin societies also have social aspects, so that those who are described as more hopeful also tend to have stronger social support (Thoits 1994). The Bedouin adolescents seemed to have norms which strengthened social support and social systems and which encouraged reliance on one another. Thus, those who reported high levels of hope might have also maintained stronger social systems and a belief in God, which enabled them to cope better with the situation.

To sum up, it seems that the different cultural characteristics of these two groups led to results in which sense of coherence was powerful and significant in explaining responses of Jewish Israelis while hope was powerful and significant in explaining responses to stress among Bedouin

Arab Israelis. Our results hint at a more contextual than universal interpretation of coping in times of threat, meaning that, when looking for resources which could help adolescents to cope better and stay healthy, we must carefully consider cultural background.

### Study Limitations

Beyond these suggestions, we have to consider the limitation of this small study. The research is clearly exploratory in nature and the findings should be considered with appropriate reservations. Our data were collected in the midst of a war and during missile attacks. Therefore, the samples are neither representative nor random but rather consist of youngsters whom we were able to reach during such a difficult time. Thus, some degree of potential sample bias should be taken into account.

Apparently, the distribution according to socio-demographic criteria was not sufficient. For example, the samples included a higher percentage of girls than boys. Moreover, although young people's self reports are generally a reliable source of information about their stress experiences, a multi-informant paradigm could enhance the data. Finally, in the absence of a base rate for the participants' psychological distress prior to the study period, we cannot state with certainty whether or not the observed outcomes are due solely to the impact of the war.

In spite of these limitations, the importance of this study is in its being a field research carried out in the midst of the stressful situation of war and severe missile attacks. The unfortunate conflictual violent situation in the area serves as a "natural laboratory" for investigation which is essential for studying human behavior (Lazarus 1982). Future designs should include longitudinal studies that are better suited to an evaluation of cause-effect relations.

To conclude, our study employs the salutogenic theory in which coping resources could moderate stress reactions during acute stress situations. However, it seems that cultural, ethnic and social context differences play a role in the process in which coping resources serve as explanatory factors of distress reactions. These finding support the value of culturally sensitive research, as well as prevention and intervention models for youth at risk in areas of political conflict.

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