The link between developmental components (age and gender), need to belong and resources of self-control and feelings of happiness, and frequency of symptoms among Arab adolescents in Israel

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ABSTRACT

The present study focuses on examining the links between developmental components (age and sex), the need to belong and resources of self-control and feelings of happiness, and the frequency of symptoms among Arab adolescents in Israel. 93 Arab adolescents aged 16 to 18 from two schools in the "northern triangle" region of Israel took part in the study. The findings indicate that developmental components—age and sex—contribute to explaining variance in symptom frequency. In addition, it was found that the happier an adolescent is, the lower the frequency of symptoms, and that the need to belong contributes to raising the level of phobic anxiety, one of the components of the symptom scale. Self-control was not found to contribute significantly to explaining variance in symptom frequency. This study has theoretical implications with respect to the importance of developmental components in explaining adolescent behavior. It also has practical implications: development of feelings of happiness to help reduce symptom frequency.

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1. Introduction

Childhood and adolescence are developmental stages that are accompanied by a broad spectrum of symptoms. Some of the symptoms are congenital (such as somatic sensitivity) and the child or adolescent will try to overcome them in the course of development; others only emerge during the maturation process as part of the responses to the situations or events to which an adolescent is exposed in everyday life (such as anxiety, depression, hostility) (Ronen, 2006, 2008).

Two main trends have characterized research on adolescents' behavior disorders and symptoms. One focuses on the developmental component and views the existence of symptoms as a normal part of growth, and expects these symptoms to disappear as children mature (Eyberg, Schuhmann, & Rey, 1998; Ronen, 2006). The other focuses on environmental influences such as stress, crisis, war, and trauma, as the main cause for the existence of children's and adolescents' symptoms (Macksoud & Aber, 1996).

The present study focuses on Arab adolescents in Israel, with the aim of studying the frequency of symptoms following the war in Gaza.

1.1. Adolescence and symptom frequency

Adolescence is a period that bridges the span between childhood and adulthood. It is characterized by physio-motor, cognitive and emotional changes (Fogany, Target, Cottrell, Phillips, & Kurtz, 2002; Kazdin & Weisz, 2003).

Epidemiological studies have found that normal development in childhood and in adolescence are characterized by rapid and orderly changes, in multiple dimensions of functioning, including cognitive, social or emotional development (Eyberg et al., 1998). A notable finding of these studies is the high frequency of various disorders. Between 17 and 22% of young people under 18 years of age have been found to suffer from developmental, emotional, or behavioral problems (Kazdin, 1994).

A number of researchers (Durlak & Dupre, 2008; Forehand & Wierson, 1993; Kazdin, 2005; Kendall, 2006) have pointed to the need to understand the importance of normal developmental processes among children and adolescents, in order to understand the psychopathological components and estimate the strength of a child's or adolescent's responses. During adolescence this becomes even more important, since it is a time that is perceived as full of crises and mental tension, during which internal structures are modified and reorganized into a new structure more appropriate to an adolescent's developmental needs (Kroger, 2003; Marcia, 2002).

Two major components that affect a child's development are age and sex. As for age, studies on behavioral problems among children found a higher prevalence of many disorders among younger children

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(Eyberg et al., 1998; Kazdin, 1994). For example, studies of adolescents exposed to situations of war, stress and trauma, have shown a decrease in traumatic responses with increasing age. Ronen, Rahav and Rosenbaum (2003) explain the decrease in anxiety and stress responses in the course of adolescence as due to the fact that older children possess more cognitive skills and therefore find it easier to cope and to process information in situations of stress.

Another developmental component that affects symptom frequency is sex. According to the literature there are differences in the development of children of different sexes (Kazdin, 1993, 2000; Klingman & Goldstein, 1994; Ronen, Rahav, & Appel, 2003, Ronen, Rahav & Rosenbaum, 2003). Basic cognitive and social learning research findings suggest that biological elements (genes and hormones) set the process of sex differentiation into motion, but that environmental conditions, information processing models, and parental influences maintain this process (Vasta, Haith, & Miller, 1995).

The literature notes two trends with respect to differences between the sexes in situations of stress. On the one hand, girls as a group mature more quickly than boys, so one can expect girls to exhibit fewer disorders with an important developmental component among them. On the other hand, role-taking influences girls by allowing them to talk more freely about anxieties and fears than do boys; thus, reports of anxiety and fear are usually higher among girls (Kazdin, 1994; Ronen, Rahav, & Rosenbaum, 2003).

With respect to sex differences in the responses to a stressful event of a threat of war it was found that girls demonstrated a higher level of stressful responses than boys, while the latter expressed greater pessimism and increased worry (Klingman & Goldstein, 1994). It should be noted that among young children no differences were found between the sexes but do emerge in adolescents. In addition, it was found that age moderates the effect of gender on anxiety, one of the symptoms generated by war (Ronen, Rahav & Appel, 2003, Ronen, Rahav & Rosenbaum, 2003).

In light of the above the present study focuses on an examination of the contribution of the variables of sex and age to the frequency of symptoms among Arab adolescents in Israel during times of stress and tension. We expect to see differences in symptom frequency between younger and older adolescents, as well as between boys and girls, following their exposure to the war in Gaza.

1.2. Symptoms and stressful situations (war)

The environmental approach to the existence of children's and adolescents' symptoms conceptualizes changes and stress as the most important components influencing disorders. Throughout childhood, children are constantly exposed to different kinds of changes: developmental, cognitive, and emotional as well as environmental (Eyberg et al., 1998). According to this approach, change (of any kind) acts as a stimulus eliciting stress and anxiety, which are then followed by behavior changes (i.e., symptoms) (Gudas, 1993; Kazdin, 2005). Children living in dangerous environments thereby undergo a major "developmental adjustment" in order to cope with their stressful situation (Macksoud & Aber, 1996). Those behavior disorders or increased symptoms thus represent a natural reaction to highly stressful experiences, indicating a movement of the whole curve of normal behavior in the direction of dysfunction.

The present study focuses on the frequency of symptoms among Arab adolescents in Israel in the wake of the Gaza war. Wars, terror attacks and political violence arouse different responses in individuals, from anxiety and tension to post traumatic responses (Brimes et al., 2003, 2005).

Studies that examined responses to continuous situations of stress, terrorism and wars on children and adolescents found a large number of symptoms, including depression, anxiety, nightmares, sleep disorders, somatic distress, concentration and behavioral problems

(Garbarino & Kostelny, 1996; Llabre & Hadi, 1994; Rosenbaum & Ronen, 1997; Vizek-Vidovic, Kutervac-Jagodic, & Arambasic, 2000; Walton, Nuttall, & Nuttall, 1997).

Three main components were found to contribute to a rise in the frequency of symptoms in the population at large: physical proximity, acquaintance with the victim, and extended exposure to situations of stress and terror (Ronen, Rahav and Appel, 2003,; Schwartzwald, Weisenberg, Waysman, Solomon, & Klingman, 1993).

As for physical proximity, it was found that wars, terror attacks and political violence arouse different responses in individuals, even when they are not physically close to the scene (Bleich, Gelkopf, & Solomon, 2003; Rubin, Brewin, Greenberg, Simpson, & Wessely, 2005; Schlenger, Caddel, & Ebert, 2002; Schuster et al., 2001). In Israel the entire population, including Arabs, are exposed to war, terror attacks and political violence: "Rockets do not distinguish between Jews and Arabs". In studies conducted in Israel it was found that physical proximity to a terror attack or being in actual objective danger of being hurt in such an attack did not correlate directly with the strength of the arousal of mental stress or with the seriousness of the post-traumatic symptoms (Bleich, Gelkopf, Melamed and Solomon, 2006; Bleich et al., 2003; Cohen & Eid, 2007; Sharlin, Moin and Yahav, 2006).

These findings may perhaps be explainable in terms of an overall sense of vulnerability created by terror attacks in different parts of the country, or one may claim that Israeli society is just strong (Sharlin, Moin, & Yahav, 2006). In contrast with the findings in Israel, studies that examined acute stress responses to the events of 9/11 in the United States did find that proximity to the event was correlated with high frequency and strength of stress responses (Galea et al., 2003; Schlenger et al., 2002; Schuster et al., 2001). Furthermore, in studies conducted in the wake of the attack on the Federal Building in Oklahoma (Pfefferbaum et al., 2003) and 9/11 (Ahern et al., 2002; Schlenger et al., 2002; Schuster et al., 2001) it was found that exposure via the media, radio and television broadcasts, aroused stress responses or worsened an existing condition in many people.

The preceding findings give rise to one of the questions of the present study: Could adolescents who are geographically distanced from the war and are not exposed to actual physical danger develop a range of symptoms in response to the security situation?

As for the second component, acquaintance with victims, it was found that the closer an individual is acquainted with a victim, as a relative or a social acquaintance, the reactions are more severe (Ronen, Rahav, & Appel, 2003).

Israeli Arabs have national, cultural, family and religious ties with the Arabs living in the Gaza Strip. Acquaintance with a victim can take the form of actual familiarity, but may also take the form of ethnic blood ties. These adolescents were exposed indirectly to war in the Gaza Strip by the media and by the relation with their relatives who had been bombed in Gaza.

Studies have shown that ethnic background affects the severity of responses to acts of terrorism (Schuster et al., 2001). For example, terrorism in the course of the Al Aqsa Intifada, which was aimed at Jews but also hit the Arab population, aroused similar levels of distress and symptoms of stress in both groups (Cohen & Eid, 2007; Slone, Adiri, & Arian, 1988); in fact, the levels of distress and symptoms may have been higher among the Arab populace (Bleich, Melamed, & Solomon, 2006; Hobfoll, Canetti-Nisim, & Johnson, 2006). A similar trend was also found in studies that examined signs of stress among Jews and Arabs in the wake of the Second Lebanon War in 2006: more acute symptoms were found in the Arab population (Cohen & Yahav, 2010; Shaham, Lahad, & Shaham, 2010).

Yet another factor that was found to correlate with symptom severity among individuals was the duration of exposure to the event, that is, whether the exposure consisted of a one-time incident or of continuous pressure (Ronen, Rahav, & Appel, 2003). In general it has been found that the risk of the appearance of symptoms rises with

increasing exposure (Garbarino & Kostelny, 1996; Macksoud & Aber, 1996; Thabet & Vostanis, 1999). In the short range, symptoms of fear, anxiety and stress may appear (Milgram & Milgram, 1976; Raviv, 1993; Swenson & Klingman, 1993), with stress being expressed at the physiological level (Farhood et al., 1993; Ronen & Rahav, 1994), at the emotional level (Al-Eissa, 1995; Farhood et al., 1993; Jensen, 1996), at the cognitive level (Richters & Martinez, 1993; Ronen & Rahav, 1994) and at the behavioral level (Al-Eissa, 1995; Garbarino, Kostelny & Dubrow, 1991; Ronen & Rahav, 1994; Ronen, Rahav & Rosenbaum, 2003). In the long range the symptoms take the form of post-traumatic stress disorder.

There is no doubt that war has a tremendous impact on the psychosocial development of children and adolescents (Macksoud & Aber, 1996; Straker, Mendelsohn, Moosa, & Tudin, 1996). Still, there are debates about the way war impacts children and adolescents. While some war experiences seem to increase the mental health problems of children (Macksoud, Dyregrov, & Raundalen, 1993), who demonstrate symptoms ranging from mild distress to severe trauma (Garbarino & Kostelny, 1996), other war experiences, paradoxically, seem to affect children positively (Garbarino, Kostelny, & Dubrow, 1991).

In light of the above, emphasizing the role of developmental component (age and sex) and being aware of the war in Gaza, we expect a high frequency of symptoms among Arab adolescents exposed for an extended time period to war and terror incidents.

Is every adolescents exposed to personal and environmental change at risk for developing stress response or are there other components that might facilitate or prevent the development of stress response?

While we believe that the need to belong is an interpersonal component which can facilitate the development of symptoms, we view the personal resources of self-control and sense of happiness as protecting factors that might prevent stress response.

1.3. Need to belong

The need to belong is part of the social development of children and adolescents. It begins already in early infancy, with a child's first contact to its parents (Bowlby, 1988). Through the connection formed between parent and child the latter develops basic trust and confidence in the figure that cares for it. This trust creates the basis for the development of social contact with the broader environment at a later stage.

In the process of social development the child learns to make contact, to understand the other's feelings, to accept the other's position, to develop social skills, values and objectives (Davies, 1999). Many studies have shown that social contacts and social support make an important contribution as major factors in coping with situations of stress, crisis and change (Baumeister & Leary, 1995; Leary & Baumeister, 2000; Schaffer, 1996).

During adolescence social development is influenced by parents (family), the school, and especially one's peer group. The latter differ from family in that it allows the adolescent to act outside the direct control of parents, in (partial) independence, and also enables its members to engage in activities that the adult world (mostly parents and teachers) forbid. Activity within a peer group enables adolescents to develop an identity that is detached from the identity they received within the family and prepares them for forming their own fabric of relationships. In some cases the peer group becomes a full (or almost full) substitute for the family, and the adolescent perceives it as his only reference group. This makes the social support an adolescent receives from such a group so important; he feels a strong need to be part of a social group that provides him with shelter and emotional support, and also gives him an opportunity to experience a variety of roles to which he will hardly be exposed elsewhere (Mus, 1988).

The concept of belonging describes our location in relation to the community or to a specific group. In other words, a man defines his identity beyond himself when his collective identity has meaning. A person who considers himself an integral part of a group of people feels that he is accepted in that group. Usually he shares values, objectives, experiences and various emotions with the group. There is a feeling of respect, commitment and support, in addition to the interrelations and cooperation that are very significant (Levine, 2000). Groups that give a person a sense of belonging contribute to the individual's self-esteem, self-confidence, stability and satisfaction. In contrast, people who do not have a sense of belonging experience a feeling of solitude and are vulnerable to being manipulated and influenced by others (Levine, 2000).

Having the feeling that one is accepted, understood and fits into a group or system is an important developmental task for anyone, and specifically for adolescents (Erikson, 1964). The feeling of belonging is perceived as a vital and basic human need (Baumeister & Leary, 1995; MacDonald & Leary, 2005). People are motivated to satisfy this need; the search for interactions with others give one a sense of connection and belonging.

In the present study we rely on previous findings to the effect that in a state of social rejection people with a strong need for social belonging tend to interpret the behavior of others as threatening and rejecting, and they may experience negative feelings such as anxiety, vulnerability, hostility and anger (Leary, Koch, & Hechenbleikner, 2001; Leary & Springer, 2001). Some studies indicate that social dismissal and rejection can give rise to hostile thoughts that can lead an individual to violent behavior (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007). Thus being successfully integrated into society, receiving support and help, and feeling that one is significant for the society in which one lives, are perceived as a vital resource. On the other hand, if an individual fails to feel that he belongs this may give rise to a sense of frustration and may engender hostility and anger, and so also to impair one's sense of mental well being, which is important to any person, but especially so in adolescence (Anderson & Bushman, 2002; Joireman, Anderson, & Strathman, 2003). This claim is reinforced by a study by Agbaria, Ronen and Hamama (in press), which found that Arab adolescents that were characterized by a strong need to belong developed more violent behavior and reported low levels of positive feelings and self-control.

In light of the above, we shall in the present study examine the hypothesis that the less an adolescent is certain of his social status within the family or among his friends, and therefore expresses a stronger need to belong, the more symptoms he will develop. In addition, we shall examine two resources that may contribute to an alleviation of the symptoms among adolescents.

1.4. Personal resources

Personal resources have been described by researchers and clinicians as personality traits that enable a person to cope with stressful life situations (Blair, Denham, Kochanoff, & Whipple, 2004; Burger, 1994; Gyurak & Ayduk, 2008; Major, Richards, Cooper, Cozzarelli & Zubek, 1998; Ronen, Rahav, & Moldawsky, 2007; Walsh, 1996: Weisbrod, 2007). According to Hobfoll's resource conservation model (Hobfoll, 2001), such resources may be material, personality related, social or energetic. In fact, the model says that people do everything in their power to protect and defend their own and their communities' resources. Loss of resources is the main factor in situations of stress. In other models resources are moderating or mediating factors in such situations (Pearlin, 1999). In the present study we examine self-control, happiness and social belonging as variables that represent an adolescent's personal resources, and inquire into the connection between these resources and symptom frequency.

1.5. Self-control

The concept of self-control describes task-oriented behaviors that are performed out of free choice, as more desirable than other, more

attractive behaviors (Thoresen & Mahoney, 1974). This definition contains two facets: *free choice*, that is, a behavior is consciously chosen because of its importance, and not due to pressure from the external environment or from necessity; and *choice between two opposing behaviors*, meaning that one has a number of choices and one must choose between the most important (or efficient) for oneself and the one that is most desirable at the moment (Ronen, 1997).

Rosenbaum (1993, 1998) describes self-control as a system of task-oriented cognitive skills that enable people to act so as to achieve their aims, overcome difficulties associated with thoughts, emotions and behaviors, postpone gratification and cope with pressures.

According to Ronen and Rosenbaum (2001) the skill of self-control is activated only when a person faces obstacles that are hard to overcome and interfere in the achievement of his aims. This means that a person's aims and the obstacles on the way to achieve them will determine whether he will activate self-control skills. Therefore an adolescent who does not perceive his own aggressive behavior as a problem, or perhaps even sees it as a source or reinforcements, will not activate self-control skills.

In the present study the use of the term self-control skills refers to the activation of a set of skills in order to achieve a desired aim. This set includes: cognitions and self-instructions for coping with various emotional and physiological responses, use of problem-solving strategies, ability to postpone satisfactions, and a person's belief in his ability to control internal events by himself (Rosenbaum, 1980).

In a number of studies on children and adolescents it was found that subjects who possessed self-control skills such as gratification postponement, problem solving and cognitive structuring, showed less aggressive behavior (Ayduk et al., 2000; Blair et al., 2004; Gyurak & Ayduk, 2008; Weisbrod, 2007). In addition, it was found that high levels of self-control are associated with more success in social contact and more adaptive emotional responses to stressful situations, with fewer reports of psychopathology (Tangney, Baumeister, & Boone, 2004).

In a study that examined the connection between self-control and anxiety and loneliness among siblings of children with cancer, a significant correlation was found between self-control as coping skills and anxiety and loneliness as emotional stress responses. In other words, siblings who reported higher levels of self-control had lower levels of anxiety and loneliness (Hamama, Ronen, & Feigin, 2009).

The findings in these studies lead to the claim that the personality trait of self-control enables one to strike a balance between oneself, the environment and one's aims. People who succeed in achieving such a balance can adapt themselves to the demands of the environment (Rothbaum, Weisz, & Snyder, 1982) and cope efficiently with difficult situations and stress.

In fact, self-control can be relevant for coping with symptoms, in two ways: high self-control enables one to manage symptoms, for example to re-experience a stressful event; secondly, self-control is important for processing the emotions and thoughts aroused by stressful situations.

We therefore expect adolescents with a high rate of self-control skills to experience lower rate of symptoms.

1.6. Happiness

Happiness, which has been explained by philosophers as the sublime good, is not easy to define. In recent decades it has been the focus of numerous studies and has been re-classified under more specific headings, such as subjective well being, positive affect, and satisfaction with life (Diener, 2009).

Despite the similarity between "happiness" and "subjective mental well being", most writers have refrained from using the former term, because of the many meanings it has been given (Diener, 2009). The term that is most commonly used today is "subjective well being",

which refers to the subjective evaluation by an individual of his quality of life (Diener, 1984, 2009) and contains the components of satisfaction with one's life (cognitive component) and relation between positive and negative feelings (emotional component) (Diener, 2009). The concept is important particularly in situations of great pressure and distress, that can affect one's subjective well being (Hobfoll, 1989; Natving, Albrektsen, & Qvarnstrom, 2001; Torsheim, Aarø, & Wold, 2001).

The term "subjective well being" refers to a person's subjective evaluation of his quality of life, happiness and satisfaction, as well as the quality of his internal experiences with respect to different aspects of one's life (Diener, 1984). Subjective well being contains components such as happiness, gratification, satisfaction and quality of life (Diener, 1984). These components relate to cognitive and affective responses of the individual to what he experiences (Diener, 1984; Veenhoven, 1991). People with high well being feel more in control of their lives, cope more effectively with stressful situations in their lives, and define aims in life for themselves (Keyes & Ryff, 2000; Veenhoven, 1991).

A number of studies point to positive correlations between well being and a sense of being in control of one's life (McConnell et al., 2005; Veenhoven, 1991), an ability to cope with pressures and conflicts (Argyle, 1987), and a tendency to experience fewer negative feelings (Fordyce, 1988). In addition, a positive correspondence has been found between social belonging and well being (Bolger, Zuckerman, & Kessler, 2000; Spiegel, Bloom, Kraemer, & Gottheil, 1989).

According to the previous literature, stressful and chronic experiences affect the way in which a person evaluates his satisfaction with life, and as a result also his well being (Ash & Huebner, 2001; Headey & Wearing, 1989), and is a connection between the feeling of tension and anxiety experienced as a result of experiencing stressful (political, economic, social or family) events and low well being (Campbell, 1981). A number of studies have shown a negative correlation between satisfaction with life and the development of post-traumatic symptoms in different populations, such as veteran soldiers (Kashdan, Julian, Merritt, & Uswatte, 2006), people with a CFS background (Eglinton & Cheung Chung, 2011), and people with a background of drug use (Ouimette, Goodwin, & Brown, 2006).

In the present study the subject of subjective well being among adolescents was approached by way of focusing on evaluating the level of happiness in life. Gilbert (2005) made a distinction between emotional, moral and judgmental happiness. Emotional happiness, unlike the other two types, is associated with feelings and not with actions. Feelings derive from pleasurable and enjoyable experiences. Moral and judgmental happiness, on the other hand, are associated with thinking; the knowledge one has that one is performing an accepted moral behavior gives one a feeling of happiness. Happiness is usually associated with the idea of control. Human existence is closely connected to control, so that from the moment control is lost people begin to be unhappy, hopeless and depressed (Gilbert, 2005). Positive psychology connects happiness with coping (Ben-Shahar, 2007).

In view of the above, it may be hypothesized that adolescents with low levels of happiness could develop symptoms of anxiety, depression and pressure, and that they would be less immune to the effects of war, and conversely.

To summarize, the present study focuses on the link between developmental components (age and sex) and symptom frequency, and examines the extent to which the need to belong increases the severity of the symptoms while self-control and happiness alleviate them.

1.7. Hypotheses

1. Age and sex will contribute to symptom frequency among Arab adolescents so younger adolescents will develop more symptoms than older ones, and girls will develop more symptoms than boys.

2. The need to belong will contribute to symptom frequency in a way that adolescents with high belonging need will develop more symptoms.
3. Self-control will contribute to symptom frequency, thus among adolescents with high self-control symptom frequency will be lower than among adolescents with low self-control.
4. Happiness will contribute to symptom frequency thus happier adolescents will have a lower tendency to develop symptoms.

2. Research methods

2.1. The sample

The study sample consisted of 93 Arab adolescents from two high schools in Israel's Northern Triangle region, which contains a number of Muslim Arab towns and villages. The participants were chosen in accordance with a convenience sample. Of the 93 subjects 40 were boys (43%) and 53 were girls (57%), aged 16–18 (M = 17.2, SD = 2.3).

2.2. Instruments

The participants in the study were asked to fill in five self-report questionnaires:

Personal details questionnaire: This questionnaire contains personal and family information about the subject: sex, year of birth, country of birth, year of immigration to Israel, place of residence, family status and performance at school
Adolescence self-control scale: This questionnaire was developed originally by Rosenbaum (1980) for the purpose of estimating individual differences in self-control skills. The questionnaire tests self reporting about the use of cognitions (such as instructions to self) and the application of problem solving strategies, in order to cope with emotional and physiological responses. The questionnaire was adapted for children and adolescents by Rosenbaum and Ronen (1991). It consists of 32 items that express various parameters of self-control skills: gratification postponement, overcoming pain, planning ability, use of self instructions, etc. The subject is asked to evaluate each item on a six-point Likert scale, going from 1 ("very uncharacteristic of me") to 6 ("very characteristic of me"). The questionnaire was checked according to a scale between − 3 and 3 points, indicating the extent to which the subject evaluates the item as characteristic of him. The questionnaire contains nine opposite items.
In the reliability test of the questionnaire among adults and adolescents (Rosenbaum, 1998) a relatively high Cronbach alpha coefficient of α = .78 was found. In a previous study of Arab adolescents (Agbaria, Ronen, & Hamama, in press) a Cronbach coefficient of α = .77 was found for all subjects. In the present study the coefficient was α = .80.
Symptoms questionnaire (Brief Symptom Inventory—BSI): The symptom test was developed by Derogatis and Melisaratos (1983). It tests a person's general level of psychological distress, as expressed across a broad range of symptoms. The questionnaire is a shorter version of a more detailed research tool, the Symptom Checklist-90-R (SCL-90-R), developed by Derogatis (1977), and consists of 53 items. The subject is asked to rank the extent to which he suffered from each of the symptoms during the preceding month on a five-point Likert scale, from 1 ("not at all") to 5 ("very much").
A number of indices can be derived from the questionnaire: a General Severity Index (GSI) that reflects the overall distress level, and grades for nine sub-scales of psychological adaptation (somatization, obsession–compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid thinking

and social alienation) that provide a subject's psychological profile in psychopathological terms. In the present study the Cronbach alpha coefficient for the entire questionnaire was α = .94.
Below are the details of the various sub-scales, the items in each, and the alpha coefficient:

1. Somatization (7 items) reflects psychological distress due to a perception of non-functionality or physical inability, which expresses itself in the form of complaints about various autonomous systems in the body such as the digestive system, as well as pains and discomfort in different parts of the body. In the present study the Cronbach coefficient was α = .73.
2. Obsession–compulsion (6 items) reflects thoughts and actions that are perceived as uncontrollable and disturbing, for example a need to check and recheck actions, difficulty in making decisions, and lack of concentration. In the present study the Cronbach coefficient was α = .68.
3. Interpersonal sensitivity (4 items) reflects a sense of interpersonal unsuitability and inferiority, which may be expressed in the form of self-condemnation, a significant feeling of discomfort in interpersonal interactions, and the like. In the present study the Cronbach coefficient was α = .62.
4. Depresson (6 items) reflects symptoms of depressive syndromes, among them moods, reduced interest in life's activities, loss of energy, hopelessness and worthlessness. In the present study the Cronbach coefficient was α = .72.
5. Anxiety (6 items) reflects a group of symptoms associated with a high level of anxiety, restlessness, nervousness and tension. In the present study the Cronbach coefficient was α = .75.
6. Hostility (5 items) reflects hostile thoughts, feelings and actions, which may be expressed in the form of restlessness, desire to break things, getting into arguments, and uncontrollable outbreaks. In the present study the Cronbach coefficient was α = .67.
7. Phobic anxiety (5 items) reflects states of phobic anxiety such as phobias related to a journey, staying in an open place, being in a crowd and in public places. In the present study the Cronbach coefficient was α = .69.
8. Paranoid thinking (4 items) reflects a kind of thinking that is characterized by projection, hostility, suspicion, egocentrism and fear of loss of autonomy. In the present study the Cronbach coefficient was α = .47.
9. Social alienation (4 items) is a continuum between a strange life style and a state of psychosis, which can express itself through symptoms of schizophrenia, or through more dramatic symptoms of psychosis. In healthy populations the index measures mainly alienation and social estrangement. In the present study the Cronbach coefficient was α = .68.

Questionnaire of the need to belong: This questionnaire tests the need of individuals for belonging socially to different social groups. It was developed by Schreindorfer and Leary (1996). At first it consisted of 23 items that examined the extent to which people consider it important to be accepted by others, the importance of belonging to different social groups, and the extent of the tendency to react negatively to rejection. After a factor analysis was performed by Kelly (1999) the questionnaire was reduced to 10 items, and every subject was asked to estimate the items on a 5-point Likert scale, from 1 ("very little") to 5 ("very much"). The questionnaire contains two opposite items. In a previous study among Arab adolescents a Cronbach coefficient of α = .62 was obtained for the totality of subjects (Agbaria et al., in press). In the present study the Cronbach coefficient was α = .64.
Subjective happiness scale (SHS): This questionnaire was composed by Lyubomirsky and Lepper (1999) in order to evaluate the level of individuals' personal happiness based on subjective reporting. The questionnaire contains 4 items on a 7-point Likert scale from 1 ("very unhappy") to 7 ("very happy").

The questionnaire was evaluated and validated by means of 14 samples collected at different times and places (Lyubomirsky & Lepper, 1999). In all, 2732 subjects participated in the evaluation, including 1754 women, 962 men, and another 16 who did not give their sex. The Cronbach alpha coefficients were high, α = .79–.94. No significant overall differences were found in the variables of age and sex. In the present study the Cronbach alpha coefficient was α = .60.

2.3. Procedure

The five aforementioned questionnaires were handed out as part of a more extensive study that addressed the issue of symptom frequency in the wake of the Gaza war of December 2008 among adolescents. The research questionnaires were approved by the Ministry of Education's Chief Scientist, following which two schools in Israel's Northern Triangle region were approached that had been chosen in convenience sampling. After a meeting with the school administration letters were sent to the parents in which the purpose of the study was explained. They were also asked to write on the letter whether they agree to or oppose their children filling out the questionnaires. At the last stage the first researcher came to the school for one school day. He entered the homerooms, explained the purpose of the questionnaires to the adolescents, emphasizing the fact that they were to be filled anonymously, and that the findings will be used purely for research purposes. The rate of cooperation was very high; all the children who were present in school on that day expressed their willingness to fill the questionnaires, which were in Arabic. They had already been translated into Arabic previously and had been used in previous studies, with the exception of the Need to Belong questionnaire, that was translated expressly for the present study, using the "back-and-forth" system, by four Arabic and Hebrew speaking referees (two teachers and two psychologists).

3. Outcomes

Table 1 depicts intercorrelations, means, standard deviations and significance of the research variables. As can be seen from this table, a correlation was found between the developmental component of sex and symptom frequency, a negative correlation between happiness and most of the symptoms, a positive correlation between the need to belong and symptoms, and no significant correlation between self-control and the symptoms.

The first research hypothesis focused on the relationship between developmental components (age and sex) and symptom frequency. As Table 1 shows, a significant correlation exists between sex and symptoms, namely more symptoms were found among girls than among boys (r = .31, p<.01), but no significant correlation was found between sex and symptoms. In addition, a negative correlation was found between happiness and symptoms as well as with each of the subscale of symptoms.

Table 2
Regression analyses: main effects of gender, age, happiness, self control and need to belong on BSI (n = 93).

Variables	b	B	SE.B	R^2
First step				0.945
Gender	.14**	24.32	6.61	
Age	.08*	12.11	5.54	
Second step				0.013
Happiness	−.10**	−13.33	2.95	
Self control	.028	3.56	3.83	
Need to belong	.039	4.50	2.94	

Gender (0—female, 1—male); age (0—17, 1—18).
* p<0.05.
** p<0.01.

In a regression analysis (Table 2) that predicted variance in symptom frequency through age, sex, need to belong, self-control and happiness, both the age (Beta = .18, p<.05) and the sex variable (Beta = .37, p<.01) were found to contribute significantly to explaining the variance of symptom frequency: girls and young age were characterized by higher symptoms than boys and older age. Hypothesis no. 1 was thus confirmed.

In addition, further regression analyses were performed in order to predict each of the symptoms separately (somatization, obsession–compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid thinking and social alienation); here the variables of age, sex, happiness, need to belong and self-control were entered as predictive variables. On each of the scales the same findings appeared, namely, that age and sex contributed to the frequency of each symptom.

The second research hypothesis concerned the link between the need to belong and symptom frequency. As Table 1 shows, there is a significant direct correlation between the need to belong and symptom frequency (r = .23, p<.05), as well as between the need to belong and most of the symptoms. In other words, the greater the need to belong, the higher the frequency of the symptoms. However, in regression analysis the need to belong was not found to contribute to explaining the variance in symptom frequency. The second research hypothesis was thus partially confirmed.

The regression analysis of the sub-scale for phobic anxiety showed. In addition to findings that were identical to those of all the other sub-scales (correlation of age and sex with symptoms, and negative correlation with happiness). We conducted interaction analysis with need to belong × age, need to belong × sex, need to belong × self-control, and need to belong × happiness. Only one interaction was found between the need to belong × sex. Table 3 shows the findings of the phobic anxiety regression analysis.

The table shows that the interaction was not significant for boys, however among girls there was a significant interaction between need to belong and phobic anxiety thus, the greater the need to

Table 1
Intercorrelations between research variables (N = 93).

		1	2	3	4	5	6
1	Self control						
2	Happiness	.12					
3	Need to belong	.42**	.002				
4	BSI	.19	−.36**	.23*			
5	Age	−.13	−.16	−.14	.13		
6	Gender	.31**	.15	.18	.31**	.10	
	M	28.08	19.34	33.15	124.44	17.20	
	SD	22.31	4.31	5.40	32.75	2.30	

Gender (0—female, 1—male); age (0—17, 1—18).
* p<0.05.
** p<0.01.

Table 3
Regression analyses: main effects of gender, age, happiness, self control, need to belong and interaction of need to belong and gender on phobic anxiety (n = 93).

Variables	b	B	SE.B	R^2
First step				0.88
Gender	.17**	2.64	0.85	
Age	.01	0.01	0.71	
Second step				0.022
Happiness	−.12**	−1.39	0.39	
Self control	.008	0.09	0.51	
Need to belong	.08*	0.88	0.39	
Third step: Interactions				0.006
Need to belong and gender	.12*	1.65	0.72	

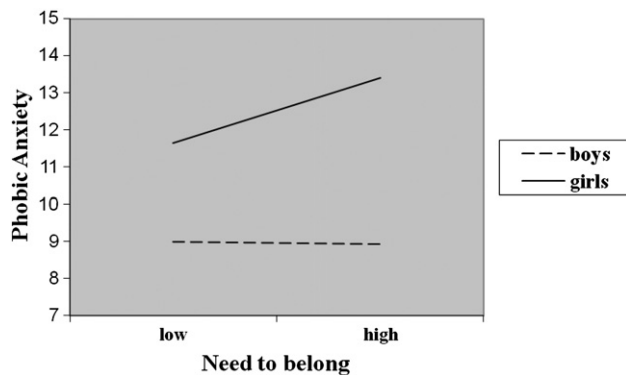Gender (0—female, 1—male); age (0—17, 1—18).
* p<0.05.
** p<0.01.

**Fig. 1.** Graph1: interaction between need to belong and gender.

belong, the more powerful the phobic anxiety. Fig. 1 presents the interaction of the need to belong × sex.

The third research hypothesis focused on the link between self-control and symptom frequency. Table 2 shows a significant negative correlation between the two variables, indicating that the more self-control an adolescent has, the fewer symptoms he reports. However, in the regression analysis (Table 3) self-control was not found to contribute to a variance in symptom frequency. The third research hypothesis was thus partially confirmed.

The fourth research hypothesis dealt with the link between happiness and symptom frequency. In the Pearson analyses (Table 1) a significant negative correlation was found between the variables (r = −.36, p<.01), that is, the happier an adolescent is, the fewer symptoms he will have. In regression analysis (Table 2), happiness was found to significantly contribute to explaining variance in symptom frequency (Beta = −.41, p<.01). The fourth hypothesis was thus confirmed.

To summarize, the study's findings show that developmental components (age, sex) contributed to symptom frequency among adolescents. A correlation was also found between happiness and symptom frequency, as well as between developmental components and happiness: among girls the level of happiness is lower than among boys, and among younger adolescents the level of happiness is higher than among the older ones.

These findings are shown in the following model:
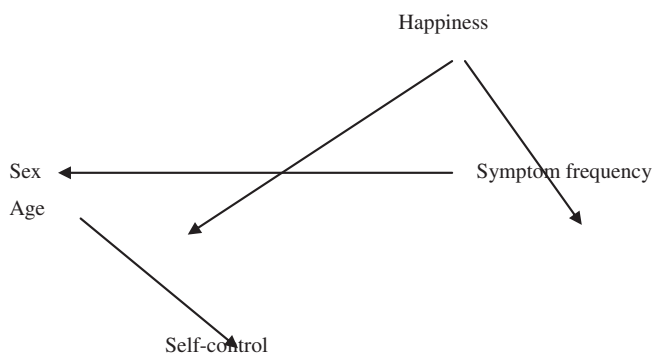
4. Discussion

The present study focused on a population of Arab adolescents in Israel and examined variance in symptoms related to the developmental components of sex and age, the need to belong, and resources of self-control and happiness. The purpose of the study was to add to the knowledge concerning situations of stress among adolescents in general, and concerning the contribution of developmental components and personal resources in particular. The study was conducted in the spirit of positive psychology, which, "focusing on individuals' traits, strengths, and diverse coping mechanisms for responding effectively to

stress—reflects the human wish to lead a more productive and fulfilling life, and to identify and develop their talents" (Joseph & Linley, 2006).

The study's findings underline the importance of developmental components and personal resources in reducing the symptoms that were examined against a background of stress due to the war in Gaza to which the adolescent subjects were exposed. Below we explain these findings in greater detail.

The first research hypothesis aimed at examining the contribution of sex and age to symptom frequency among Arab adolescents.

Developmental psychologists (Davies, 1999; Schaffer, 1996; Vasta et al., 1995) have suggested that developmental components are crucial in determining behavior. Therefore, demographic characteristics like age and sex hold implications for variation among adolescents.

We hypothesized that younger adolescents and girls would develop more symptoms than boys and older adolescents. The study's findings show a negative correlation between age and symptoms, and that the sex variable contributes to explaining variance in symptom frequency. Similar findings with respect to age have been reported in other studies as well (Eyberg et al., 1998; Kazdin, 1994; Ronen, Rahav, & Rosenbaum, 2003). In these studies it was found that the younger a child, the higher the frequency of the symptoms. As for sex, the findings in the present study reinforce previous findings (Klingman & Goldstein, 1994; Ronen, Rahav & Appel, 2003, Ronen, Rahav & Rosenbaum, 2003), namely, that symptom frequency is higher among girls than among boys.

A possible approach to explaining the findings with respect to age is based on developmental theories that claim that a child's age should be understood also in terms of cognitive and emotional maturity. In other words, a child's thinking, understanding and world view constitute the basis for the way it perceives its surroundings and the reasons for what occurs there (Crick & Dodge, 1994; Davies, 1999; Kazdin, 1988; Shirk & Russell, 1996). A cognitively more mature child can better understand how his/her own thinking affects what he/she feels and how he/she behaves, and can examine what he/she usually thinks and tells his/her self in similar circumstances. In fact, one of the important components in the process of cognitive development is the way a child learns and succeeds in processing information. Studies have shown that the way children process information influences not only the way they will respond to an event, but also on the way they feel towards themselves and the world around them (Crick & Dodge, 1994). We may thus argue that low symptom frequency at an older age is due to the fact that an older adolescent is able to carry out abstract thinking processes that help him process the information about the stressful event, and therefore his response will be milder than that of a younger child.

As for sex, a possible explanation for the findings can be based on socialization processes: girls are expected to express their feelings more openly than boys, while boys tend to play the "tough guy" and hide their feelings (Ronen, 2003). Therefore, we cannot know if boys in fact experience symptoms to a lesser degree or if they only report less about their symptoms.

The second research hypothesis focused on the contribution of the need to belong to symptom frequency, that is, adolescents with a high need to belong were expected to develop more symptoms. The study's findings partly confirmed this hypothesis: where the need to belong was higher Arab adolescents showed a higher symptom frequency. However, the need to belong is not a variable that can predict variance in symptom frequency. In previous studies, too, a positive correlation was reported between the need to belong socially and hostility and various other negative feelings, such as frustration, anxiety and anger (Baumeister & Tice, 1990; Leary & Springer, 2001; Leary et al., 2001). A possible explanation for this finding is based on the social information processing model developed by Dodge and his associates (Crick & Dodge, 1994; Dodge, 1986; Dodge & Pettit, 2003), namely that when an adolescent interprets a social situation as rejection, at a time when he is in need of social support, the chances

are high that he will activate hostile thoughts in view of this threat, and these will arouse various symptoms (Twenge et al., 2007; Williams et al., 2003).

The third research hypothesis focused on the contribution of self-control to symptom frequency, and assumed that among adolescents with a high degree of self-control the symptom frequency will be lower. The study's findings showed that the more self-control an adolescent has the fewer symptoms he reports. However, the self-control variable was not found to be predictive with respect to variance in symptom frequency. The correlation found here is supported by previous studies (Hamama, Ronen, & Feigin, 2000; Hamama et al., 2008). A possible explanation for this correlation is based on the model of Lazarus and Folkman (1984), according to which a situation of stress is accompanied by three processes: *Preliminary evaluation*, the process of perception of the threat itself, is shaped by the set of characteristics of the individual (beliefs, commitments) and of the environment (nature of the threat/damage, familiar or new event, likelihood of the threat materializing, time of the event, and ambiguity or clarity of the expected results (Folkman, 1984, 1997). *Secondary evaluation*, which is a process of raising to consciousness the possible response to a threat, includes the evaluation of physical, social, psychological and material resources in keeping with the demands of the situation. Secondary evaluation is influenced by three factors: how powerful the threat is (as assessed in the preliminary evaluation), the characteristics of the stressful event, and the characteristics of the individual's personality (Folkman, 1984, 1997). At this stage the individual asks himself what he can do to deal with the situation, what coping strategies are available to him, and what the chances are for achievements using any of these. *Coping* is a process of carrying out the response and includes cognitive and behavioral attempts to control reduce or tolerate the internal and/or external demands that are estimated to exact a price or impoverish the individual's resources. Coping is influenced by the characteristic of the stressing event and the internal and environmental resources available to the individual. Coping is what the individual thinks or does in a given context and not what he says he would do in such a context, or what usually happens in general contexts.

According to the model of Lazarus and Folkman (1984) self-control is thus the resource of coping. Therefore, adolescents with high self-control skills expressed fewer symptoms than those characterized by low self-control skills.

Another explanation for the finding is related to the way the self-control skills are operated. In other words, an adolescent's ability to identify automatic thoughts, to use diversion and alternative thinking, and to find alternative solutions that are self-control skills, will lead him to choose a controlled, planned, adaptive and less symptomatic behavior.

The fourth research hypothesis dealt with happiness, and assumed that happier adolescents will tend to develop fewer symptoms. This hypothesis was confirmed, that is, happiness was found to be both a predictive variable and a variable associated with symptom frequency among Arab adolescents. Similar findings have been reported in other studies (Biswas-Diener & Dean, 2007; Keyes & Ryff, 2000; Ronen & Seeman, 2007; Sarason, Sarason, & Pierce, 1994).

A possible exhaustive explanation may be associated with the fact that, as most researchers have agreed, happiness is similar to personal well-being or emotional satisfaction, and thus enables good environmental relationships (Keyes et al., 2008; Ryff, 1989). Keyes et al. (2008) suggested that happiness incorporates two abilities: achieving subjective well-being by expressing positive emotion, and achieving positive functioning toward oneself and one's environment. Research showed that in order to become happier, people need to gain a sense of mastery, connectedness, and self-acceptance (Biswas-Diener & Dean, 2007). Being happy does not mean that people do not experience stress, crisis, or problems; rather, happiness encompasses a "secret weapon" in trying to cope with such distress—for example

by understanding that although distress exists, happy moments will return and one can work toward achieving more happiness (Biswas-Diener & Dean, 2007; Keyes & Ryff, 2000; Lyubomirsky, 2007).

4.1. The study's limitations

A number of factors limit this study's generality. The study is based on "convenience sampling", which is not probabilistic and includes only Arab adolescents from the Northern Triangle, in which only about 10% of Israel's Muslim Arab population lives. Therefore, it is recommended to redo the research on a representative sample.

In addition, the data in the present study were obtained through the use of self-reporting questionnaires. Such questionnaires give the adolescent's own perspective, but it may well be that others, such as the peer group or parents, may provide different information. Another limitation concerns the aspect of social volition in the context of the self reporting questionnaires.

The study was conducted at a certain point in time; it is a cross-sectional study. Perhaps we could have obtained reinforcement for our findings had we checked the variables in a research array before/after the Gaza war, which may have provided a broader picture about the stressful event (the Gaza war), and so may have made it possible to explain the variance in symptom frequency among Arab adolescents.

4.2. Practical implications

The results of this study give rise to two main directions for *application*. The first concerns deliberate intervention in order to enhance self-control skills as a coping resource; the other concerns deliberate intervention aimed at increasing happiness as a supportive and protective resource in stress situations. In other words, learning self-control skills can contribute to an individual's ability to cope with challenges associated with stress situations, enables him to identify the role of thoughts in emotional arousal, enhances the ability to overcome disturbing feelings, and helps to bring about behavioral change (Ronen, 2003). In addition, enhancing the feeling of happiness will make it possible to cope (Ben-Shahar, 2007) and contribute to high mental well being (Keyes & Ryff, 2000; Veenhoven, 1991) among adolescents. Such intervention can be carried out in groups, and so also provides a solution to the developmental task of the need to belong.

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