Subjective age, PTSD and physical health among war veterans
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Objectives: To examine the contribution of posttraumatic stress disorder (PTSD) and physical health to subjective age among war veterans.

Method: The sample included 502 veterans of the first Lebanon War who were assessed 20 years after the war by a series of self-report questionnaires. Data analyses included descriptive statistics, hierarchical and logistic regressions.

Results: Veterans with PTSD reported older subjective age than veterans without PTSD. Furthermore, both PTSD and general physical health contributed to subjective age, above and beyond chronological age and negative life events. Among the physical health problems, memory problems and weight gain were found to contribute to older age identity. In addition, the relation between general physical health and subjective age was stronger among veterans without PTSD than among veterans with PTSD.

Discussion: Possible explanations, clinical implications for integrative therapy for elderly PTSD victims, and recommendations for future research are presented.

Keywords: PTSD; subjective age; physical health; war

Introduction

Age is one of the most important social categories, as it forms the basis for expectations regarding one’s social roles and life experience. Age also touches upon one’s personal identity and self-perception. Over many years of comprehensive research, the measurement and definition of age have become highly complex (Settersten & Mayer, 1997).

One’s objective or chronological age refers to the time period since one’s birth, and may be measured according to one’s date of birth (Settersten & Mayer, 1997). However, age seems to be a relative concept, as people tend to perceive time quite differently from one another (Hendricks & Hendricks, 1976). Thus, one’s chronological age only partially predicts one’s physical, functional and psychological state (Maddox & Wiley, 1976; Montepare, 1996).

In order to broaden the understanding of age, several other definitions were suggested over the years (Keith, 1997). One of the most common categorizations (Birren & Cunningham, 1985) distinguishes between three types of age:

1. Biological age refers to the functioning of one’s organic systems. According to this functioning, it may be determined whether one is younger or older than her chronological peers.
2. Social age refers to one’s social roles compared to others in the society. One is evaluated according to whether or not one acts younger or older than expected from one’s chronological age.
3. Finally, psychological age is the perception of how old one feels. This can be different than chronological age, as people often feel younger or older than they actually are. Thus, people of the same chronological age may report a wide range of subjective age identities (Kaufman, Elder, & Glen, 2002; Maddox & Wiley, 1976; Montepare, 1996).

Unlike chronological age, which is easily defined, psychological age is a complex term affecting many different facets of the individual. Psychological age is also known as ‘subjective age’ (Keith, 1997) or ‘personal age’ (Kastenbaum, Derbin, Sabatini, & Arrt, 1972). Owing to its amorphous nature, several conceptualizations and operational definitions of subjective age have been suggested (Barak & Stern, 1986; Sudbury, 2004). For example, ‘age identity’ is often measured by asking individuals to classify themselves according to categories of age (i.e., do you feel: ‘young’, ‘middle aged’, ‘old’ or ‘elderly’?; Keith, 1997; Shanas, 1950). This measurement is quantitative in nature, and taps into one’s subjective perceptions of one’s own age rather than one’s actual chronological age. Psychological age may also be assessed in a projective way by asking a person what others perceive his or her actual age is (Barak & Stern, 1986). Another related concept is ‘age appearance’, which may be measured by a question regarding one’s physical appearance (e.g., ‘how old do you think you look?’; Sudbury, 2004). This measurement is more related to realistic and physical elements in one’s appearance and

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Research suggests that middle age is a turning point, following which people tend to start perceiving themselves as younger than their chronological age (Keith, 1997). Determining which factors influence age perception may help identify factors associated with the quality of life and mental health of the adult population. Several demographic variables, such as cultural variation (Dasen & Mishra, 2000), low education and old chronological age (Markides & Boldt, 1983) were found to be associated with older subjective age. Likewise, psychological variables, such as lack of meaning in life (Baum & Boxely, 1983), low cognitive abilities, low ego functioning (Carp & Carp, 1981), negative affect and low life satisfaction (Westerhof & Barrett, 2005) and low self esteem (McClyr, 1985) may play a key role in one’s subjective age.

Factors related to mental and physical health were also found to be associated with subjective age (Demakakos, Gjonca, & Nazroo, 2007; Harrison & Kahn, 2004). Most research suggests that those suffering from poor health are more likely to evaluate themselves as older than their chronological age (Keller, Leventhal, & Larson 1989; Markides & Boldt, 1983). For example, previous studies describe many cognitive changes that occur during ageing, such as a reduction in memory capabilities (Schaie, 1994), that might relate to the perception of health and subjective age. Braman (2003) found that physical health and energy levels contributed to subjective age perception among the elderly. More recent studies suggest, however, that the relationship between subjective age and poor health is less straightforward and may relate indirectly to one’s functioning ability (Knoll, Rieckmann, Scholz, & Schwarzer, 2004) and age-related appearance (Braman, 2003; Kaplan & Sadock, 2004).

Previous research concerning subjective age was mostly conducted among older populations and dealt with the gap between subjective and chronological age among the elderly (Westerhof & Barrett, 2005). Therefore, the knowledge on subjective age in other populations is rather limited. The present study will therefore attempt to broaden the existing perspective, by examining subjective age among trauma casualties.

One’s subjective age may be associated with exposure to traumatic events. It is a commonly held view that people who have experienced traumatic life events (e.g. widowhood, war) are likely to experience the feeling that they have aged overnight or that old age has suddenly crept up on them. However, this notion has rarely been subjected to empirical examination. As far as we know, only one study explored the link between traumatic experience and subjective age. Turner, Runts, and Galambos (1999) studied a sample of 44 girls between the ages of 9 and 12 who had experienced sexual abuse. Results showed that this group had a higher subjective age and a maturity level greater than that of their peer groups who had not experienced abuse. The researchers claimed, among other things, that the experience of trauma affects the victim’s hormone balance. The study did not find a link between early biological maturity of this sample and an older subjective age; rather, it was the abuse itself that was a predictor of subjective age. However, the study did not explain the relationship between both the traumatic experience and post-traumatic stress disorder (PTSD) and an older subjective age.

Exposure to traumatic stress may also bring about deterioration in physical health (e.g. Woods, 2005). Several studies have investigated the link between stress-invoking situations such as fire, captivity and violence and bodily symptoms (Campbell, 2002; Creasey et al., 1999; McFarlane, Atchison, Rafalowicz, & Papay, 1994) and reported an increased risk for diseases including psoriasis (Suljagic, Sinonvic, Tupkovic, & Moro, 2000), stroke, cancer and chronic bronchitis (Felitti et al., 1998).

War is one of the most potent traumatic experiences known to man. It often results in both short-term (e.g., combat stress reaction, CSR) and long-term psychopathology, most notably PTSD. Studies investigating the short- and long-term effects of combat on veterans from World War II (Schurr, Friedman, & Green, 1996) and the Gulf War (Wessely et al., 2003) have consistently demonstrated the relationship between combat exposure and morbidity rates. Furthermore, empirical research established the association between war exposure and early physiological aging processes, as physical and mental morbidity (e.g. Creasey et al., 1999) and mortality (Boscarino, 2007).

The effects of traumatic events at old age have also been widely examined. It was often found that the aging process may interact with the traumatic event and yield unique psychological and physiological effects. For example, most elderly individuals experience events such as retirement, the death of a spouse and close friends, diminished physical capacity, and limited social support as being stressful. Ganon and Hersen (2000) suggested that the tendency to reminisce and to review one’s life, often observed among older adults, may contribute to the delayed onset of trauma-related symptoms. Somer (2000) has hypothesized that the feelings of loss of control and autonomy that frequently accompany normative aging may also trigger memories and feelings related to an earlier trauma.

This complex set of associations emphasizes the growing need to understand PTSD and its interplay with the aging process, especially considering the dearth of literature exploring the relationship between PTSD and subjective age (Bremner & Naryan, 1998). There appears to be a significant lack of empirical research exploring the similarities between the physiological process of early aging and the exaceberation in subjective age among PTSD casualties.
Based on the literature review, three questions have been proposed to expand the knowledge in this field.

1. Will there be a higher reported subjective age among veterans diagnosed with PTSD?
2. What is the contribution of physical health problems to older subjective age, above and beyond PTSD?
3. Will subjective age be higher among soldiers who suffer from both PTSD and health problems?

**Method**

**Participants**

The sample included 502 male veterans who took part in active combat in the first Lebanon War in 1982. This study is part of longitudinal study on veterans of the Lebanon war who suffered from CSR during battles and other veterans who fought in the same battles but were not diagnosed with CSR (Solomon & Mikulincer, 2006). The criteria for consideration as CSR casualty were: (1) participation in front-line battles during the war; (2) a referral for psychiatric intervention made by the soldier’s battalion surgeon during the war; (3) a diagnosis of CSR made on the battlefield by trained and experienced clinicians; and (4) no indication in the clinician’s report of serious physical injury and/or other psychiatric disorders. The research staff determined eligibility using records of clinicians’ diagnoses made on the battlefield. The non-CSR veterans were matched with the CSR veterans for age, education, military rank and assignment. While it is difficult to control for the subjective stressfulness of any combat experience, the sampling procedure used here was chosen to ensure that soldiers in both groups were exposed to a similar amount and type of objective stress. All the soldiers underwent stringent physical and psychiatric screening before commencing their military service and no indication of diagnosable premorbid symptomatology was recorded in their medical files.

Participants were assessed in 2002, 20 years after the war. Group differences between veterans with diagnosis of PTSD (n = 134) and veterans without PTSD (n = 358) were examined before further analyses. There were no significant differences between the two groups in age, number of children and religiosity. The mean age of the total sample was 47.17 (SD = 5.59). There were significant differences in the fathers’ country of birth, level of education and income level. There were more participants whose father was born in Asia/Africa in the PTSD group (42.9%) than in the non-PTSD group (27.1%). There were also more participants who earned above the mean income level in the non-PTSD group than in the PTSD group (26.8% vs 10.8%) and more who had higher education in the PTSD group than in the non-PTSD group (31.9% vs 15%).

**Recruitment and procedure**

Participants were recruited from a pool of participants used in a previous study conducted in 1983 on the basis of the population of veterans from the 1982 Lebanon war. The former study included 667 veterans. After updating addresses and phone numbers, potential participants were contacted by telephone and the aim of the current study was explained. A total of 581 veterans were located and 502 of them agreed to participate in the current study (75%). Twenty years after the war, data were collected at the veterans’ homes. Participants’ informed consent was obtained and they were informed that the data would remain confidential and in no way influence their status in military or civilian life. Approval was obtained by both IDF and Tel Aviv University human subject committees.

**Measures**

**The PTSD inventory**

The PTSD inventory (Solomon et al., 1993) was used for the diagnosis of combat-related PTSD. This instrument is based on DSM-IV criteria. The questionnaire consisted of 17 statements describing different expressions of the disorder following war experience. Respondents were required to rate each statement according to the frequency in which they experienced the described content during the last month. Ratings appear on a 4-item scale ranging from ‘never’ to ‘very often’. Distress was defined as the global severity index (GSI) of the commonly used SCL-90. A score of at least 1.26 is the accepted cutoff point, which represents a level of clinical distress commonly observed in treatment seekers (Derogatis, 1977). Dysfunction at work or in social relations was measured by the Social Functioning Problem Solving Scale (Solomon & Mikulincer, 1987).

In the present study, the inventory was found to have high internal consistency (Cronbach’s α = 0.96 for symptom intensity, 0.93 for intrusion, 0.90 for avoidance, 0.91 for hyperarousal and 0.94 for magnitude of disturbing symptoms). The scale was also found to have high convergent validity when compared with diagnoses based on structured clinical interviews (Solomon & Horesh, 2007).

**Number of health problems**

Participants were presented with a checklist of 15 health problems and requested to indicate for each problem from which they suffer whether it began before or after the Lebanon War. The list included allergies, hypertension, ulcer, other digestive problems, heart disease, chest pains, diabetes, malignant disease, weight gain, weight loss, back pain, head aches, joint pain, memory problems and fatigue or weakness. The number of health problems list was based on common
health problems covering the central body systems that have been used in previous studies of war veterans (Ohry et al., 1994).

**Subjective age**

This was assessed by two self-rated questions concerning subjective perception of age:

- **Age identity** – veterans were asked ‘do you feel that you have grown old ahead of your time?’ and responded by checking one of the options ‘yes’ or ‘no’. Because this question relates to the concept of ‘old age’ that is part of the stages of the human life cycle (Sudbury, 2004), this variable was defined as ‘age identity’.
- **Age appearance** – veterans were next asked, ‘how old do you think you look?’ and rated themselves in the most appropriate way to their feelings on a three-point scale (1 = younger than my chronological age; 2 = as my chronological age; and 3 = older than my chronological age).

Although we used only two questions tapping subjective age, many studies have shown that one question is usually enough in order to examine this concept (e.g. Barak, 1987; Kaufman & Elder, 2002, 2003).

**Life Events Questionnaire**

Life events after the war were measured using Solomon and Flum’s (1988) Life Events Questionnaire. This questionnaire comprises 23 life events tapping four domains: family, work, health and personal events. Participants were asked whether they had experienced any of the events since the 1982 Lebanon war. In addition, they were asked to indicate whether the experienced events were perceived by them as being positive or negative. The sum of negative life events after the war was used for analysis.

**Data analysis**

Data analysis was divided into three stages. First, we performed chi-square and t-tests to examine differences between veterans with PTSD and veterans without PTSD on older age identity and age appearance, respectively. Second, in order to examine the unique contribution on health problems to age identity and age appearance a three-step logistic regression and a three-step hierarchical regression analyses were performed, respectively. Third, in order to examine the moderating role of the number of health problems on age identity and age appearance, a three-step logistic regression and a three-step hierarchical regression analyses were performed, respectively.

**Results**

**Relationship between PTSD and subjective age**

We performed a chi-square test to examine differences between veterans with PTSD and veterans without PTSD on older age identity (yes/no). The results yield a significant relationship between PTSD and age identity ($\chi^2 (1) = 110.89, p < 0.001$). Some 63% of the veterans with PTSD reported an older age identity. As opposed to them only 15.2% of the veterans without PTSD reported older age identity.

Furthermore, we performed a t-test to examine group differences between veterans with PTSD and veterans without PTSD on older age appearance. The t-test yielded a significant effect for PTSD diagnosis ($t (1) = -7.25, p < 0.001$). Veterans with PTSD reported that they are looking older than their chronological age ($M = 2.16$) compared with veterans without PTSD ($M = 1.74$).

**PTSD diagnosis, health problems and subjective age**

A three-step logistic regression analysis was conducted to examine the unique contribution of PTSD and a list of health problems to age identity. Furthermore, a three-step hierarchical regression analysis was conducted to examine the unique contribution of PTSD and a list of health problems to age appearance. In the first step of both regressions, we entered chronological age and negative life events as control variables. In the second step, we entered the group variable (PTSD/non-PTSD). In the third step, a list of 15 health problems was entered into the regression equation. Table 1 presents regression coefficients for age identity and age appearance, separated by their specific analyses.

The total set of variables explained 32.1% of the variance of the age identity ($\chi^2 (18) = 144.5, p < 0.001$). PTSD diagnosis predicted age identity above and beyond chronological age and negative life events. Inclusion in the PTSD group raised the probability for older age identity (OR = 3.78, $p < 0.001$). From the list of health problems memory problems and weight gain significantly contributed to age identity (OR = 2.08, $p < 0.05$ and OR = 4.39, $p < 0.001$, respectively). An increase of memory problems and weight gain raised the probability for older age identity.

With regards to age appearance, the total set of variables explained 20% of the variance ($F (18, 374) = 4.95, p < 0.00$). As can be seen in Table 1, PTSD was found to significantly predict age appearance ($\beta = 0.16$, $p < 0.00$), above and beyond chronological age and negative life events. From the list of health problems it was found that memory problems significantly contributed to age appearance ($\beta = 0.13$, $p < 0.01$). That is, the more a veteran suffered from memory problems the older he tended to describes himself.
Table 1. Logistic regression coefficients of age identity probability and hierarchical regression coefficients of age appearance by chronological age, negative life events, PTSD diagnosis and health problems.

<table>
<thead>
<tr>
<th>Predicting variables</th>
<th>Age identity</th>
<th>Age appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exp. (B)</td>
<td>Wald</td>
</tr>
<tr>
<td><strong>Step I</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic age</td>
<td>1.01</td>
<td>0.29</td>
</tr>
<tr>
<td>Negative life events</td>
<td>0.88</td>
<td>0.77</td>
</tr>
<tr>
<td><strong>Step II</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic age</td>
<td>1.00</td>
<td>0.95</td>
</tr>
<tr>
<td>Negative life events</td>
<td>0.95</td>
<td>0.08</td>
</tr>
<tr>
<td>PTSD diagnosis</td>
<td>10.73***</td>
<td>75.35</td>
</tr>
<tr>
<td><strong>Step III</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic age</td>
<td>0.98</td>
<td>0.45</td>
</tr>
<tr>
<td>Negative life events</td>
<td>1.02</td>
<td>0.02</td>
</tr>
<tr>
<td>PTSD diagnosis</td>
<td>4.37***</td>
<td>18.08</td>
</tr>
<tr>
<td>Allergy</td>
<td>1.36</td>
<td>0.37</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.16</td>
<td>0.12</td>
</tr>
<tr>
<td>Ulcer</td>
<td>2.92</td>
<td>2.80</td>
</tr>
<tr>
<td>Digestive problems</td>
<td>2.16</td>
<td>3.85</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>2.71</td>
<td>3.01</td>
</tr>
<tr>
<td>Chest pains</td>
<td>1.80</td>
<td>3.14</td>
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<tr>
<td>Diabetes</td>
<td>0.45</td>
<td>1.57</td>
</tr>
<tr>
<td>Back pain</td>
<td>0.99</td>
<td>0.01</td>
</tr>
<tr>
<td>Weight gain</td>
<td>4.39***</td>
<td>18.80</td>
</tr>
<tr>
<td>Weight loss</td>
<td>2.73</td>
<td>3.46</td>
</tr>
<tr>
<td>Headache</td>
<td>1.17</td>
<td>0.18</td>
</tr>
<tr>
<td>Joint pains</td>
<td>1.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Memory problems</td>
<td>2.08***</td>
<td>4.35</td>
</tr>
<tr>
<td>Tiredness or fatigue</td>
<td>1.37</td>
<td>0.72</td>
</tr>
<tr>
<td>Malignant disease</td>
<td>1.59</td>
<td>0.04</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.32***</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05; **p < 0.01; ***p < 0.001.

The moderating role of the number of health problems

In order to examine the moderating role of the number of diseases on the relation between PTSD and age identity, a logistic regression was performed. In order to examine the moderating role of the number of diseases on the relation between PTSD and age appearance, a hierarchical regression was performed. Both of these analyses were performed in accordance with procedures described by Baron and Kenny (1986). Each regression analysis was conducted in three-steps. In the first step, we entered the chronological age and negative life events as control variables. In the second step, we entered the group variable (PTSD/non-PTSD) and the number of health problems. In the third step, we entered the interaction between PTSD and the health variable. Table 2 presents regression coefficients for age identity and age appearance, separated by their specific analyses.

The total set of variables explained 28.2% of the variance of age identity ($\chi^2 (5) = 138.3, p < 0.001$). As can be seen in Table 2, PTSD and physical health made a significant contribution above and beyond chronological age and negative life events variables. Inclusion in the PTSD group increases the probability of reporting an older age identity (OR = 10.90, p < 0.001). Furthermore, it was found that a greater number of health problems increased the probability of reporting an older age identity (OR = 1.60, p < 0.001).

Table 2. Logistic regression coefficients of age identity probability and hierarchical regression coefficients of age appearance by chronological age, negative life events, PTSD diagnosis and number of diseases.

<table>
<thead>
<tr>
<th>Predicting variables</th>
<th>Age identity</th>
<th>Age appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exp. (B)</td>
<td>Wald</td>
</tr>
<tr>
<td><strong>Step I</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic age</td>
<td>1.00</td>
<td>1.59</td>
</tr>
<tr>
<td>Negative life events</td>
<td>0.99</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Step II</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic age</td>
<td>1.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Negative life events</td>
<td>1.13</td>
<td>0.62</td>
</tr>
<tr>
<td>PTSD diagnosis</td>
<td>4.38***</td>
<td>25.30</td>
</tr>
<tr>
<td>Number of health</td>
<td>1.44***</td>
<td>35.66</td>
</tr>
<tr>
<td>problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step III</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic age</td>
<td>1.00</td>
<td>0.59</td>
</tr>
<tr>
<td>Negative life events</td>
<td>1.14</td>
<td>0.76</td>
</tr>
<tr>
<td>PTSD diagnosis</td>
<td>10.90***</td>
<td>19.76</td>
</tr>
<tr>
<td>Number of health</td>
<td>1.61***</td>
<td>33.99</td>
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<tr>
<td>problems</td>
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<tr>
<td>PTSD* number</td>
<td>0.77*</td>
<td>4.13</td>
</tr>
<tr>
<td>of health problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.28***</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05; **p < 0.01; ***p < 0.001.

The interaction between PTSD and physical health was also significant (OR = 0.77, p < 0.05). We used Aiken and West’s (1991) recommendations for exploration of interactions in logistic regressions. We regressed the sum of diseases on age identity, separately for PTSD group and non-PTSD group. In the PTSD group we found that the number of health conditions significantly contributed to the age identity (OR = 0.21, p < 0.01). In the non-PTSD group, a stronger relation between the number of health problems and age identity (OR = 0.47, p < 0.01) was observed.

These results demonstrated the moderating role of health problems on age identity. Veterans without PTSD reported a positive relation between the number of health problems and age identity, and this relation was weaker among participants with PTSD.

With regards to age appearance the total set of variables explained 16.2% of the variance ($F (5,491) = 15.96, p < 0.001$). As can be seen in Table 2, the final model showed that PTSD diagnosis and the number of health problems made a significant contribution above and beyond chronological age and negative life events variables. The more a participant suffered from posttraumatic symptoms (β = 0.19, p < 0.05), and the more he defined his physical health as poor (β = 0.33, p < 0.001), the older he reported his age appearance. The interaction between...
PTSD and the number of health problems was non-significant.

Discussion
This study explored the relationship between PTSD, health problems and perception of subjective age. An older subjective age was defined as the feeling of early aging and the perception of an older external appearance than chronological age. Our findings show that soldiers diagnosed with PTSD report an older subjective age than their actual chronological age, in comparison with soldiers without PTSD. In a similar vein, we found that PTSD, memory problems and weight gain made a significant contribution to an older age identity. Furthermore, an older subjective age was also related to a higher number of physical health problems, above and beyond chronological age and negative life events. Contrary to our hypotheses, we found that the relationship between the number of health problems and subjective age was stronger among veterans without PTSD than among veterans with PTSD.

To the best of our knowledge, this is the first study to explore the direct relationship between PTSD and an older subjective age. Our findings correspond with the findings of Turner et al. (1999), who explored the relationship between old subjective age and childhood sexual abuse. They showed that girls who had experienced sexual abuse reported an older subjective age compared with girls who had no experience of abuse. However, since the study did not measure levels of PTSD symptoms among the abused girls, it cannot be determined whether there was a difference in levels of subjective age between girls who had had an acute traumatic experience and girls who had experienced chronic trauma. A question thus arises: what explains the older subjective age of PTSD casualties?

Our first explanation stems from the idea that negatively laden personality characteristics, such as low self-esteem, negative affect and weak ego strength tend to predict an older subjective age (Baum & Boxley, 1983; Westerhof & Barrett, 2005). Herman (1992) maintains that trauma can damage one’s basic trust in oneself, in others and in society as a whole. Furthermore, research suggests that combat soldiers experience a basic lack of confidence in themselves (e.g. Solomon, 1993), suffer from chronic hopelessness (e.g Ai, Terrence, Whitsett, Ishisaka, & Chim, 2007) and have a negative or foreshortened future orientation (e.g. Herman, 1992). These emotional characteristics are also commonly found among the elderly, who often experience a lack of purposefulness, a decline in the value of life and a lack of hope towards life in general (Smith-Blau, 1974).

In addition to the significant psychological suffering caused by the post-traumatic symptoms, PTSD affects one’s level of functioning in a variety of areas of life (American Psychiatric Association, 2000). Several studies have purported that PTSD may result in sexual dysfunction, occupational dysfunction and difficulties in personal and social relationships (North et al., 1999; Solomon & Mikulincer, 2007). Similarly, it is well known that the natural aging process is also characterized by functioning difficulties, often defined in terms of losses (Smith-Blau, 1974). These attributes are all part of the stereotypes which make up contemporary society’s negative attitudes towards aging and particularly the elderly (e.g. Hazan, 1994). It seems likely that the veterans suffering from PTSD, who personally experiences problems in functioning and a general decline in his quality of life (Magruder et al., 2004), will identify with characteristics of the elderly population, and thus report an older subjective age.

In accordance with other studies (e.g. Demakakos et al., 2007), our results point to the contribution of health variables (i.e. general physical health and number of health problems) to age identity and age appearance. A number of explanations have been offered for this association. Staats et al. (1993) suggest that it is the personal perception of one’s health status in comparison to others that predicts subjective age. Another explanation is taken from the theory of ‘comparison between the times’ (Braman, 2003). Analogous to social comparison theory (Festinger, 1954), which states that the individual compares himself or herself to others, this theory maintains that people tend to compare their present status to their status in the past. Regarding our research, we suggest that veterans’ perceived changes of bodily aging, their external appearance and their functioning will all influence their identity perception and their older age appearance.

A number of specific health problems were found to predict older subjective age. We found that memory problems contribute to older age appearance and age identity, and that weight gain contributes to older age identity, above and beyond post-traumatic symptoms. Age-related self-reported memory problems are one of the most widely studied self-perception constructs in old age, possibly due to the fact that subjective memory problems are present in up to 35-40% of community-dwelling, non-demented elders (Grut et al., 1993). The literature also describes the negative social stigma accompanying cognitive changes during aging (e.g. Logan, Russel, & Spitz, 1992). It seems that individuals who develop memory problems may be more prone to experience themselves as old than other individuals without memory problems. This may be the result of pessimistic stereotypes and beliefs about how aging affects memory (Camp & Pignatiello, 1988). It is also possible that those who subjectively perceive themselves as suffering from memory decline will in fact be more aware of ‘objective’ memory malfunctions (Cook & Marisiske, 2006), and hence more likely to find validation for their older subjective age.

The finding that weight gain influences older identity age but not older age appearance
was surprising. A number of reasons may explain this finding. Numerous studies show that being overweight is linked to lower physiological functioning (Coakley et al., 1998), which in turn may reduce the quality of life and lead to a more negative perception of general physical health (Yan et al., 2004). It may be assumed that lower quality of life and a more problematic physical health both contribute to older subjective age. Furthermore, a variety of studies point to the link between weight gain and different aspects of self-perception (e.g., self-worth; Mendelson, White, & Mendelson, 1996). Thus, with regard to our study, we may assume that being overweight will contribute to lower self-worth, due to the internalization of negative societal and cultural messages of being weak-willed and lacking in discipline and motivation (Quinn & Crocker, 1999), and that these messages will result in older age identity among veterans.

Regarding our last research question, we found that PTSD moderates the relationship between the number of physical health symptoms and older age identity. However, contrary to our expectation, we found that there was a stronger relationship in the control group between health and subjective age than in the PTSD group. How can we explain this finding when the literature points to a poor physiological and mental condition as being clear predictors of older subjective age (e.g., Keller et al., 1989)?

First, we are aware of various ‘ceiling effects’ that occur in groups of PTSD casualties. We observed that a substantial percentage of PTSD casualties perceive themselves as older than their actual age. However, when PTSD effects are intensified, the comprehensive damage to the casualty’s functioning, mental health and physical health (Benyamini & Solomon, 2005) may lead to the possibility that health variables will not contribute to the explained variance of subjective age. In other words, when physical health starts to degenerate, it seems to have a greater influence on subjective age among control veterans, who from the onset felt younger than the PTSD casualties.

An alternative explanation stems from the idea that the human experience of age is complex and multidimensional. Thus, disabilities of veterans suffering from physical health problems may be a significant factor in their perception of old age. In contrast, for others, disabilities due to prolonged mental health difficulties will be the critical factor for their perceived subjective age. Recent literature regarding age suggests that the quality of life of the individual is linked more to perceived age than to chronological or objective age (Boehmer, 2006; Harrison & Kahn, 2004). Thus, veterans suffering from PTSD and from health difficulties do not necessarily feel older than veterans who do no suffer from PTSD but suffer from some sort of morbidity. For example, an overweight veteran who experiences a decrease in his general functioning and quality of life can be expected to feel older than a veteran suffering from PTSD with less damage to his general functioning and quality of life.

This study suffers from several methodological limitations. First, it is cross-sectional and hence it is impossible to infer causal conclusions from it. Second, there were only two questions that related to the dependent variable, and this is likely to affect the reliability of the results, as they do not fully cover the general perception of subjective age. The addition of supplementary questions exploring other dimensions of the subjective age (multi-dimensional questionnaire of subjective age; Kastenbaum, et al., 1972), may lead to a more comprehensive understanding of this variable. The study also lacks an objective measure of health status, for example, physical tests and medical assessments. Fourth, all the data in this study were based on self-report questionnaires that make the results susceptible to shared method variance errors. Finally, the medical dimensions that were examined include lists of illnesses but do not contain a measure of severity.

To conclude, this is one of the first studies to explore the implications of PTSD and health problems in early exacerbated psychological aging. Literature in the field of aging may gain much from studies that will examine different traumatized populations, (for example, victims of natural or man-made disasters), as well as studies assessing the contribution of specific PTSD symptoms to older subjective age. In general, future studies on this topic can deepen our understanding of the social and cognitive mechanisms that influence feelings of early aging among those who went through a traumatic experience and who subsequently from PTSD.

Our findings point to the importance of integrative therapy for PTSD casualties. Because identifying with an older subjective age is likely to lead to a reduction in well-being and life expectancy, a vicious cycle is created. A decline in one’s mental health affects one’s thought patterns and perceptions, which in turn reduces one’s chances of recovery. This once again affects the victim’s mental health. There is a need to implement the clinical suggestions, and relate to subjective age as much as just an assessment. Appropriate therapy for casualties may help them change the thought patterns involved in their perception of the ‘self’, as well as strengthen behavioral patterns that typically characterize the young, the vibrant, and the healthy.

References


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