

Psychological Stressors and Burden of Medical Conditions in Older Adults: A Psychosomatic Approach

Ali Javapour, MD¹
 Ali Ghetmiri, MD¹
 Ali Sahraian, MD¹
 Arash Mani, PhD¹

¹ Research center for psychiatry and behavioral sciences. Department of psychiatry. Shiraz university of medical sciences. Shiraz, Iran.

Corresponding author:

Ali Sahraian, MD,
 Assistant professor in Psychiatry,
 Department of psychiatry, Hafez hospital, Shiraz. Iran.
 Tel: +98 (711) 6279319
 Fax: +98 (711) 6279319
 Email: psychiat@sums.ac.ir

Objective: In geriatric practice, the impact of psychological distress on health status has been undermined due to ageism, atypical presentation and less tendency to report negative affect among elderly people. Few studies have examined the impact of psychological stressors on medical burden in older adults. The current study has investigated the correlation of psychological distress and burden of medical conditions in a sample of older people.

Method: A convenient study sample of 120 elderly subjects was recruited from the places where there was greater chance for the elderly people to attend. Data were collected by a trained research assistant using perceived stress scale, cumulative illness rating scale, geriatric depressive scale and a demographic questionnaire.

Results: Our participants perceived more level of stress than the average for their age. In the current study, the burden of medical condition was significantly correlated with the level of perceived stress ($r = .197$, $p = .044$). Moreover, in regression analysis, perceived stress was the strongest predictor for physical health morbidity ($R^2 = .049$, significant $f = .03$).

Conclusions: The result of this study suggested that the psychological stressors contribute to poor health outcome in older adults; the area that is usually overlooked due to ageism and its physiological related changes. The medical practitioners should consider the psychological distress as a part of etiological factors implicating in health morbidity among their aged patients.

Key words: *Frail elderly, Psychological Resilience, Psychological stressors, Psychosomatic medicine*

Iran J Psychiatry 2009; 4:107-111

Psychological stressors set in motion physiological changes in the body, which arise both physiological and behavioral reactions increasing susceptibility to mental and physical illnesses. There has been a growing interest in the relationship between psychological stressors and physical health status; and various physiological, emotional and behavioral reactions have been attributed to stress. Researches conducted in different populations have supported the association between stressors and medical morbidity or health service utilization (1, 2). Psychological stressors have been implicated in physiological changes that increase susceptibility to physical illnesses. Even minor daily experience is associated with higher cortisol level and its medical outcome (3). In addition to physiological processes, exposure to stressors could result in maladaptive behavioral patterns as adaptive responses such as bad sleep, tendency to substance use, decreased activity and poor compliance to medical orders. In psycho geriatric practice, the effect of psychological stressors on physical health status has been undermined due to ageism, atypical presentation and less tendency to report negative effect among elderly people. Previous studies have been inconsistent about the extent to which mental distress predict more burden of medical conditions in elderly population. In one study conducted by Prakash and colleagues,

stressful life events were associated with poor mental and physical health in a group of old persons (4). Thompson et al, found a positive correlation between mental rumination about past negative experiences and immune dysfunction; they also noted that these subjects had more tendency to use health services (5, 6). The results of a prospective study which recruited 8205 persons who were aged over 65, showed that disability as a chronic stressor predicted increased risk of gastrointestinal bleeding. In contrast to the general assumption, older adults express less reaction to stressors than younger adults. There is some evidence that older people are more prone to experience negative affect and higher stress reactivity than the younger adults (1, 7). In a survey comparing autonomic reaction to work-related stress, authors concluded that recovery from stress in older adults was insufficient compared to the younger adults (8). It has been postulated that lifetime frequent activation of neural pathways due to stress exposure may cause sensitivity to further stimuli like daily stressors, considering the kindling effect in aging brains (1). A substantial burden of psychiatric problems coexistence with chronic physical disorders has been reported in Prakash et al study (4). To the best of our knowledge, literature in this area has been less conclusive. We designed this study to examine the interrelationship between psychological stressors and

burden of medical condition in a group of elders, hypothesizing that stressors bring about more physical burden in older adults.

Materials and Methods

Participants

In this cross sectional study, we recruited easy and accessible sample of 120 elders who were over 60 years of age. The sample was selected from older adults who attended a variety of places where there was a greater chance for presence of elders such as aging clubs, social welfare services and aged relatives of health services consumers. The study was conducted from March 2008 to July 2008 at a research centre for Psychiatry and Behavioral Sciences of Shiraz University of Medical Sciences in Iran. Data were collected by a research assistant, a psychiatry resident, through interviewing and completing self-rated questionnaires. The purpose of the study was described by the research assistant, and confidentiality was considered based on attaining a verbal consent from those who agreed to participate in the study. Subjects were excluded if they had cognitive or physical disability interfering with their compliance. In this study, 13 subjects were excluded and data from 107 elders were analyzed.

Instruments

A socio-demographic questionnaire was developed and 3 extra questions were added to check the participant's history of psychiatry illness, substance use and complaints about cognitive decline. Paykel life event scale was administered to assess stressful life events during the previous year. The participants scored each event from 0 to 20 to define to what degree the events they had experienced were subjectively stressful to them. In addition, those events that were more likely to be related to medical conditions (e.g. history of a disease,) were excluded. The level of perceived stress was measured using perceived stress scale (PSS); a scale composed of 10 items detecting the degree to which participants find their lives unpredictable and uncontrollable. The English version of the scale was translated to Farsi and was back translated to English by three English experts (9). Depressive symptoms were scored using GDS- 15 Farsi version (10). The burden of medical condition was detected performing a classic interview and physical examination by completing the Cumulative Illness Rating Scale (CIRS) (11).

Data analysis

In the initial analysis, we performed a descriptive characteristics of the study sample. We also performed multivariate analysis to compare the means of the analysis to describe the socio-demographic pertinent study variables such as burden of medical conditions and psychological stressors between the socio-

demographic groups. Pearson co relational analysis was carried out to detect the association between the continues background and the study variables. The predictability power of demographics and stress related variables for burden of physical illnesses was tested using stepwise regression analyses, and the research questions were:

- To what degree the older adult sample experienced stressful life events or perceived stress?
- What socio-demographic characteristics predict more stress level?
- To what degree the experience of life event or the level of perceived stress predict physical burden?

Results

Socio-demographics of the participants are presented in Table 1. The average age of the elders participating in this study was 67.4 (SD=6.65) with a range of 57 to 85; the mean education level was 8 years (SD=5.83). The findings for physical health related variables showed the mean score of 6.8 (SD=6.69) for CIRS, and the mean numbers of visiting a physician by the participants was 6 times per year (SD=4.5). The mean of geriatric depressive scale in our sample was 4.37 (SD=3.5) which was within normal average. The mean number of stressful events reported in previous year for each person was two events and the sum of stressful life events score during the past year averaged 51.4 (SD=37.62). The participants had a higher mean score on perceived stress (16.9; SD=6.16) than the established mean score for their age (12; SD=6.3).

Table1.sociodemographics and study variables of sample study.

Socio-demographics	N	%
Age		
M	67.4	
SD	6.64	
Sex		
Male	51	47.7
female	56	52.3
Education		
Mean	7.9	
SD	5.8	
Marital status		
Married	73	68.9
Widowed	33	31.2
Residential status		
With spouse	24	22.6
With whole family alone	65	61.3
alone	17	16
Employment status		
Unemployed	73	68.2
Employed	13	12.1
retried	21	19.6
Income:		
Superannuation	57	53.3
Assets	28	26.2
support	22	20.6

Table2. .stepwise regression model1 for perceived stress

Variables entered	df	R	R ²	Adjusted R	Significant F
Stressful life events	1	0.278	0.077	0.067	0.008

Note: excluded variables= sex, age, education, income, CIRS, marital status, residential

Table3.pearson correlation between demographics and study variables

variables	1	2	3	4	5	6	7
Age	1.0						
Education	-0.172	1.0					
Number of visits	0.105	-0.129	1.0				
Stressful life events	-0.249	0.033	0.122	1.0			
Perceived stress	-0.069	-0.160	0.087	0.263**	1.0		
Depression	-0.073	-0.146	0.119	0.261**	0.531**	1.0	
Burden of medical conditions	0.061	0.011	0.226*	0.006	0.197*	0.112	1.0

* Correlation is significant at the level 0.05 (2 –tailed).

** Correlation is significant at the level 0.01(2-tailed).

Table4. Stepwise regression for burden of medical condition

Variables entered	df	R	R ²	Adjusted R	Significant F
Perceived stress	1	0.221	0.049	0.038	0.035

Note: Excluded variables= age, sex, education, marital status, employment status, income, residential status, recent stressful events.

Furthermore, co relational analysis revealed that recent stressful events and perceived stress were correlated with one another ($r = 0.263, p=0.008$).

Multivariate analysis which was used to compare the means of PSS between the groups based on their socio-demographic variables (sex, age, income, marital and residential status) failed to detect a significant difference between the groups. In further exploratory analysis, the strongest predictor for perceived stress was recent stressful events (see Table 2).

In the multivariate analysis in which the means of CIRS between groups were compared based on their socio-demographic variables (sex, age, income, marital and residential status) no significant difference was observed between the groups. As shown in Table 3, in Pearson co relational analysis, burden of physical condition was significantly correlated with the perceived stress measure ($r=0.197, p=0.044$) but not with the recent life events. Depressive symptoms were significantly correlated with both perceived stress and experience of recent stressful events ($r=0.531; p=0.001$) and ($r=0.261; p=0.007$) separately.

Likewise, further exploratory analyses using stepwise regression revealed that level of perceived stress was the strongest predictor for burden of medical conditions in our sample (see Table 4).

Discussion

While age related physiological changes are mainly implicated in the process of medical illnesses, the role of psychological factors in the pathophysiology of medical conditions among older adults has been overlooked. There is some evidence that stressful life events may have a significantly greater impact on the elders' health than on the health of the younger

populations. (12). In the literature, studies recruiting older people are few and controversial; the psychosomatic approach in relation to medical morbidity in aged people has been considered less. In a review, Bauer concluded that chronically stressed elders could be at a risk of stress-related pathological outcome (13). In a study, Ewedemi and Lind found that those subjects who reported more daily hassles perceived their health poorer than those subjects with less hassles. In addition, healthy elders who were protected from chronic stress exposure showed a normal cortisol level and increased T cell function while chronically stressed elders were at a risk of stress related pathogenesis due to alteration in stress hormones (13). In a research, Chaturvedi studied the psychosomatic disorders in a group of psychiatric patients and found that 21.5 % of the subjects had psychosomatic illnesses, and the patients with more psychosomatic disorder were older (14).

In the current study, we examined the health impact of a variety of psychological stressors in a sample of old people. These stressors include perceived stress and recent stressful life events. We examined the interrelationships among these stressors and burden of medical conditions. In addition, we determined whether various types of stressors would predict more medical morbidity.

The results from the preliminary descriptive analyses showed higher level of perceived stress in our participants compared to the average of their norms. Consistent with earlier studies, perceived stress was significantly correlated with recent stressful events (3), and stressful event in association with employment status was the strongest predictor for high perceived stress. As we hypothesized, the findings from the

present study demonstrate a significant correlation between psychological stress and health outcome. In line with findings from studies on younger population, this study provides evidence that psychological stressors might contribute to mental and physical statuses in elders (1). Ieserman and colleagues reported that four types of stressors (history of abuse, life time traumas, childhood with turmoil family, and recent stressful events) were associated with poor health indicators such as more pain, days with disability, visit physicians and psychological distress(2). We also found that higher level of perceived stress would predict more burdens of medical conditions. This result is in line with findings of Dellard et al. study in which authors noted that more perceived stress diminish the activity of neutrophils. Nevertheless, a research on Jordanian women failed to detect the relationship between physical health and the level of perceived stress (1).

Much is known about the physiological consequences of acute stressors but less is investigated about perceived stress. Our finding was consistent with other studies which investigated the reaction to the level of perceived stress. As Stressful life events, perceived stress and depressive symptoms were significantly interrelated with one another. Current studies highlight the cognitive appraisal of stressors to understand the stress implication in health status. In the other word, psychological experiences are as stressful as they are perceived. In Curtis et al study, the level of perceived stress was a better predictor than disease severity for positive and negative emotions and had a strong association with depression (15). Although high level of perceived stress in our sample was associated with recent stressful events, clear cause of perceived stress might be undermined due to methodological issues. Regardless of the cause, the high level of perceived stress strongly predicted more medical disability in our participants.

Some limitations of this study are highlighted. Several studies have supported the role of minor every day experiences or daily hassles such as driving in a heavy traffic as a pathogenesis factor for overwhelming medical conditions such as Crohn's disease, rheumatoid arthritis, IBS and headache (16-18). These researches suggested that even minor stress was a stronger predictor for physical morbidity in mentioned diseases than major stress. In the current study, we did not measure the daily hassles or minor stressors and their impacts on health.

A methodological weakness of this study is that the convenient sampling method might limit the generalizability of these results. Moreover, there could be some bias in remembering and rating the stressful events by older adults. Therefore, prospective observational study is needed.

References

1. Hattar-Pollara M, Dawani H. Cognitive

- appraisal of stress and health status of wage working and non-wage working women in Jordan. *J Transcult Nurs* 2006;17: 349-356.
2. Leserman J, Li Z, Hu YJ, Drossman DA. How multiple types of stressors impact on health. *Psychosom Med* 1998 ;60: 175-181.
3. Van Eck M, Berkhof H, Nicolson N, Sulon J. The effects of perceived stress, traits, mood states, and stressful daily events on salivary cortisol. *psychosomatic medicine*1996 ; 58: 447-458.
4. Prakash O, Gupta LN, Singh VB, Singhal AK, Verma KK. Profile of psychiatric disorders and life events in medically ill elderly: experiences from geriatric clinic in Northern India. *Int J Geriatr Psychiatry* 2007; 22: 1101-1105.
5. Thomsen DK, Mehlsen MY, Hokland M, Viidik A, Olesen F, Avlund K, et al. Negative thoughts and health: associations among rumination, immunity, and health care utilization in a young and elderly sample. *Psychosom Med* 2004 ;66: 363-371.
6. Williams R, Zyzanski SJ, Wright AL. Life events and daily hassles and uplifts as predictors of hospitalization and outpatient visitation. *Soc Sci Med* 1992 ;34: 763-768.
7. Mroczek DK, Almeida DM. The effect of daily stress, personality, and age on daily negative affect. *J Pers* 2004 ;72: 355-378.
8. Ritvanen T, Louhevaara V, Helin P, Väisänen S, Hänninen O. Responses of the autonomic nervous system during periods of perceived high and low work stress in younger and older female teachers. *Appl Ergon* 2006;37: 311-318.
9. Muller-Fahlbusch H. [Psychosomatic aspects of stomatology in the aged]. *Z Gerontol* 1983 ;16: 66-69.
10. Malakouti SK, Fatollahi P, Mirabzadeh A, Salavati M, Zandi T. Reliability, validity and factor structure of the GDS-15 in Iranian elderly. *Int J Geriatr Psychiatry* 2006 ;21: 588-593.
11. Miller MD, Paradis CF, Houck PR, Mazumdar S, Stack JA, Rifai AH, et al. Rating chronic medical illness burden in geropsychiatric practice and research: application of the Cumulative Illness Rating Scale. *Psychiatry Res* 1992 ;41: 237-248.
12. Cohen S, Janicki-Deverts D, Miller GE. Psychological stress and disease. *JAMA* 2007; 298: 1685-1687.
13. Bauer ME. Chronic stress and immunosenescence: a review. *Neuroimmunomodulation* 2008;15: 241-250.
14. Chaturvedi SK, Michael A. Psychosomatic patients in a psychiatric clinic. *Int J Psychiatry Med* 1988;18: 145-152.
15. Curtis R, Groarke A, Coughlan R, Gsel A. Psychological stress as a predictor of psychological adjustment and health status in patients with rheumatoid arthritis. *Patient Educ Couns* 2005 ;59: 192-198.
16. Thomason BT, Brantley PJ, Jones GN, Dyer HR, Morris JL. The relation between stress and disease activity in rheumatoid arthritis. *J Behav Med* 1992 ;15: 215-220.

17. Garrett VD, Brantley PJ, Jones GN, McKnight GT. The relation between daily stress and Crohn's disease. *J Behav Med* 1991 ;14: 87-96.
18. Brantley PJ, Dutton GR, Grothe KB, Bodenlos JS, Howe J, Jones GN. Minor life events as predictors of medical utilization in low income African American family practice patients. *J Behav Med* 2005 ;28: 395-401.