ASSESSMENT OF SELF-ESTEEM AND ASSOCIATED SOCIO-DEMOGRAPHIC FACTORS AMONG SOLDIERS AT HIGH ALTITUDE

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ABSTRACT

Objective: To assess the self-esteem and affecting socio demographic factors among the soldiers deployed at high altitude.

Study Design: Cross sectional study.

Place and Duration of Study: Siachin, form 1 Jan to 31 Mar 2016.

Material and Methods: The sample population comprised of the soldiers deployed at a height of 4500 meter or more above sea level at Karakorum ranges in the periphery of district Skardu for more than one month. Self-esteem was assessed using the Rosenberg Self-Esteem Scale (RSES). Age, BMI, altitude, duration of stay, family income, smoking, use of naswar, worry about future, and breathing difficulties were correlated with the self-esteem to evaluate the association of these factors with low self-esteem in the study population.

Results: Out of 103 soldiers screened through the Rosenberg Self Esteem Scale at High Altitude, 71.8% had satisfactory self-esteem while 28.2% had dissatisfactory self-esteem. After applying the logistic regression we found that smoking, breathing difficulty and worry about future had significant association with dissatisfactory self-esteem.

Conclusion: This study showed that most of the Pakistani soldiers had satisfactory self-esteem during the deployment at high altitude. Special attention should be paid to the smokers and those who worry about future and have breathing difficulties at high altitude to further enhance this psychological parameter.

Keywords: High altitude, RSES, Self-esteem, Soldiers.

INTRODUCTION

Military life is recognized as a different and stressful experience when compared to routine civilian life. Studies from countries across the world support this assertion and confirm the presence of different psychological issues among military populations[1-3]. High altitude deployment is a need of the hour for various armies of the world especially Pakistan. Harsh and unusual environment of high altitude adds to the stresses of war setting and military life, thus predispose the individuals to physical and psychological problems[4,5].

Self-esteem is a broad term which signifies one's own point of view about him in all dimensions of life. It is defined as how much one likes, accepts and respects himself overall as a person[6]. Serving in army and that too in hard areas like high altitude is not possible if positivity in approach does not exist. Feelings of worthlessness or negative thoughts about own self make this task more strenuous and difficult. In recent times enhancing the self-esteem of soldiers has gained a lot of significance and military psychologists are recognizing it as an important factor in predicting the soldier's overall performance[7].

A study done at Nicosia-North Cyprus concluded that positive self esteem acts as protective factor against mental health issues among military men[8]. Similar study done in our neighboring country China among army recruits revealed that coping strategies and self-esteem influence the stress level in young fighters even at the start of their military life[9].

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Another study done on Korean soldiers showed that soldiers with low self esteem are more prone towards psychiatric morbidity and suicidal ideation[1]. Psychologists and defense analysts in our eastern neighbor India have emphasized the same and strongly recommended that enhancement of self esteem among soldiers is necessary for better performance and good military conduct[7,10].

Various studies in the past have reported the correlation of self-esteem with age, gender, education, destitution[11], BMI[12], mental health issues[1,9], smoking[13], family income[14] and working environment[7,10].

Armed forces of various countries are engaged in alpine warfare so a large number of soldiers are deployed at high altitude around the world. Different studies on job satisfaction and mental health issues of soldiers have been carried out in past in our country[2,5, 15] but no study has so far been under takenon soldiers deployed at high altitude, to identify the level of self esteem and the associated risk factors. This study aims to investigate this interesting and unique phenomenon.

MATERIAL AND METHODS

This descriptive cross sectional study was planned from 1st January 2016 to 31st March 2016 at Karakorum ranges in the periphery of district Skardu. All the subjects were male soldiers of Pakistan Army. Each of them had been deployed at high altitude (4500 meter above sea level or more) for more than one month. Sample size was calculated by WHO sample size calculator and non probability convenient sampling was done. All individuals who did not give consent or those who were permanent residents of that area or those who were unable to understand /complete the required questionnaire were excluded from the study. Subjects with any past or current history of physical or psychiatric illness or psychoactive substance use were also excluded. After the application of inclusion and exclusion criteria, 103 subjects were included in the analyses.

Different methods and questionnaires are used for the assessment of self-esteem. We used Urdu version of the Rosenberg Self-Esteem Scale (RSES) which is most commonly used. The RSES is an effective instrument for subjective measure of self-esteem. It has 10 items which are rated on 4 point Likert scale (1-4). A score of less than 30 indicates low self-esteem[16,17].

Soldiers aged 20-45 were included. Four thousand five hundred to 6000 meters and more than 6000 meters were the altitudes at which these soldiers were deployed. Family income was classed as above or below 30000 Pakistani Rupees on the basis of recent economic survey in Pakistan[18]. A history of tobacco smoking and naswar usage was obtained. People answering "yes" to question "do you smoke or have you smoked tobacco products regularly, in other words daily or nearly daily?" were classified as smokers or naswar users depending upon the product used. Stress related to worrying about the future such as having tough time ahead or family problems was asked about in detail. Those having BMI more than 24 were regarded as overweight.

After ethical approval from concerned ethical review committee and written consent from all the potential participants the soldiers were provided with a detailed description of the study. Confounding variables were taken care of by detailed history taking about any current or previous physical or psychiatric illness and any current or previous evidence of illicit substance/drug use. Those subjects with confounding variables were excluded from the study. The socio-demographic data of soldiers was entered in a structured anonymised form. Rosenberg self esteem scale questionnaire was administered to the subjects and were asked to answer the questions according to their thought process in last one month.

Descriptive statistics were used to describe the risk factors and the distribution of RSES score. Samples were identified under the categories of satisfactory and dissatisfactory self-

esteem. Variables in the study included age, BMI, altitude, duration of stay, family income, smoking, use of naswar, worry about future, and breathing difficulties. Between-group variances in categorical correlates were determined using chi-square. Binary logistic regression analysis was done to evaluate factors related to dissatisfactory self-esteem. All statistical analysis was performed using Statistics Package for Social Sciences version 21.0. Differences between groups were considered significant if p-values were less than 0.05.

RESULTS

A total of 128 soldiers at high altitude were approached to participate in the study. Twelve refused participation and 5 were ineligible due to exclusion criteria (1 gave history of psychoactive substance use, 2 were residents of that area, 2 were diagnosed cases of depression and were taking anti-depressants). After being consented, an additional 8 did not provide complete data at

Table-I: Characteristics of the study group and their Rosenberg self esteem scale (RSES) scores.

Socio demographic factors Total	Subjects with Satisfactory self-esteem (RSES 30-40)		Subjects with dissatisfactory self-esteem (RSES 0-29)		χ^2	*p*-value
	N	**%**	**N**	**%**		
	74	**71.8**	**29**	**28.2**		
Age						
20-35	51	68.9%	18	62.1%	0.442	0.642
>35	23	31.1%	11	37.9%		
BMI						
<25	51	68.9%	20	69%	0.000	1.000
25 or more	23	31.1%	09	31%		
Family income						
<Rs. 30000	65	87.8%	25	86.2%	0.050	1.000
Rs. 30000 or more	09	12.2%	04	13.8%		
Worry about future						
No	60	81.1%	06	20.7%	33.012	<0.001
Yes	14	18.9%	23	79.3%		
Duration of stay						
1-3 months	27	36.5%	13	44.8%	0.610	0.503
>03 months	47	63.5 %	16	55.2 %		
Breathing difficulties						
No	59	79.7%	04	13.8%	38.135	<0.001
Yes	15	20.3 %	25	86.2%		
Altitude at which stayed						
4500-6000 meter	58	78.4%	10	34.5%	17.895	<0.001
>6000 meter	16	21.6%	19	65.5%		
Tobacco smoking						
Non Smoker	61	82.4%	06	20.7%	34.935	<0.001
Smoker	13	17.6%	23	79.3%		
Use of naswar						
No	63	85.1%	21	72.4%	2.241	0.161
Yes	11	14.9%	08	27.6%		

baseline, leaving 103 participants who had completion of the Rosenberg self esteem scale. Out of 103, 71.8% had satisfactory self-esteem while 28.2% had dissatisfactory self-esteem. As shown in table-I smoking, altitude, breathing difficulty and worry about future had significant association with dissatisfactory self-esteem when chi-square was applied. Table-II shows that only smoking, breathing difficulty and worry about future were strongly associated with dissatisfactory self-esteem after the regression analysis.

DISCUSSION

To our knowledge this is the first ever study carried out on the soldiers of Pakistan Army exposed to a unique environment, which is challenging, new and stressful. The study is an attempt to evaluate the self-esteem in an unusual environment where individuals are deployed for protection of their mother land, in an attempt to identify risk factors common amongst those who have low self-esteem. Pakistan Army comprises

altitude have been discussed a lot but no subjective assessment of self-esteem has been found in available literature. Using Rosenberg self esteem scale we found that only 28.2% of our subjects showed low self esteem which is quite less than the statistics of other armies where self-esteem is recorded at sea level in routine circumstances[1,8]. This clearly shows that even at the toughest terrain of the world, soldiers of Pakistan army are psychologically sound and have a positive approach in life. This might be one of the reasons for a good standing of Pakistan Army among the other armies of the world despite being a developing country. Presence of high psychiatric morbidity among soldiers and other people going to high altitude and staying there is supported by local as well as foreign data[5,19]. Self- esteem and psychiatric problems have a strong correlation[1,8]. A positive feedback cycle sometimes develop between the two which becomes very annoying for the individual and affects his routine activities and work performance. The scope of our study was not to

Table-II: The correlated factors relating to self-esteem in the binary logistic regression.

	B	*p*-value	Odds ratio	Confidence Interval	
				Lower	Upper
Age (ref. is 25-35 years)	-0.387	0.583	0.679	0.171	2.701
BMI (ref. is no <25)	0.302	0.691	1.353	0.304	6.016
Family income (ref. is Rs 30000 or more)	0.096	0.930	1.101	0.130	9.310
Worry about future (ref. is no worry)	1.853	0.003	6.380	1.884	21.603
Breathing difficulties (ref. is no difficulty)	2.270	0.014	9.676	1.595	58.701
Altitude at which stayed (ref. is 4500-6000m)	1.321	0.180	0.267	0.039	1.843
Smoking (ref. is non smoker)	1.979	0.015	7.236	1.473	35.561
Use of naswar (ref. is non naswar user)	0.541	0.542	1.718	0.301	9.801
Duration of stay (ref. is 1-3 months)	0.657	0.353	1.928	0.482	7.716

of volunteer individuals who work with a lot of motivation to serve their country in the best possible way, still hazards of high altitude and war setting brings about a lot of physical and psychological problems for the soldiers deployed at high altitude[5]. Mental health issues at high

look for the presence of psychiatric illnesses among soldiers at high altitude but self-esteem is such a vast phenomenon with physiological, psychological and social dimensions that it needs discussion from this point of view as well. Soldiers posted at high altitude can initially face

such problems due to harsh environment, lack of administrative facilities and comparison of their tough life with easy life of civilian friends. Motivation and early intervention by psychologists or trained senior officers can minimize these issues and prevent the soldiers to develop feelings of worthlessness which can lead to mental health crisis and decreased professional output[8].

Various studies in the past concluded that breathing problems are common at high altitude and associated with anxiety and psychological issues[4,20]. Results in our study were similar and showed strong association of low self-esteem with breathing difficulties. Breathing problems may compromise the health of the individuals and become an obstacle in their military duties which may lead to feelings of worthlessness or low self-esteem. Tobacco smoking had strong correlation with low self-esteem in our study. It is in accordance with the other literature[13,21].

BMI and income had no significant association with low self-esteem in our study. These findings were contrary to the results of the previous studies[12,14]. Reason may be controlled BMI of soldiers and a little or no difference in their socio-economic class, not providing wide range of data sets for comparison.

Worry about future was found to be significantly correlated with the low self-esteem in our analysis in accordance with the international literature[8,9]. The worry about weather, food, logistics and other aspects necessary for normal life in harsh and uncertain environment of high altitude is an expected finding. These worrying thoughts could be on account of the unique stresses of being away from family and lack of communication facilities. Worry when excessive and in prone individuals, leads to depressive symptomatology[2] and there is an established relationship between depressive sympto-matology and low self-esteem[1,22].

The major limitation of our study is use of screening tool of self-esteem without having baseline results of the study prior to ascent at high altitude. We cannot therefore hypothesize that low self-esteem among soldiers was a consequence of high altitude hazards. The sample size, and use of self administered questionnaires pose methodological issues as well. The findings cannot be generalized as our study population was not selected from a randomized sample of all the soldiers deployed at various heights of this region including Himalayas and Hindukush. Similarly, the findings are not generalisable to the soldiers in other parts of the world. Another limitation is the chance that the subject may under or over report symptoms on self-administered questionnaires like Rosenberg self esteem scale. We suggest further studies on a broader based and a more representative sample size using locally developed and standardized psychometric tools on the subject.

CONCLUSION

This study showed that most of the Pakistani soldiers had satisfactory self-esteem during the deployment at high altitude. Special attention should be paid to the smokers and those who worry about future and have breathing difficulties at high altitude to further enhance this psychological parameter.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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