



Original Research Article

## **A Study of Stress due to Physical Appearance in Orthopedically Impaired (OI) and Non OI Individuals and its Association with Behavioral Health Risk Factors**

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### **ABSTRACT**

It is a general perception that cues of physical appearance are important for individuals, especially, physically impaired who usually have lower status than their non disabled equivalents and physically impaired are more vulnerable to adjustment with the self and subsequently, tend to constrict themselves in their own defined limitations. The disability hinders social and occupational functioning, which may eventually increase the stress levels. The current study is an attempt to assess the stress due to physical appearance among orthopedically impaired (OI) in comparison to their control counterparts. Level of self reported stress due to physical appearance and its association with behavioral risk factors was analyzed for 80 individuals (40 OI and 40 non OI). Statistical analysis was done to observe the difference. A significant difference in stress level related to physical appearance between OI and non OI female subjects was revealed, whereas, male subjects did not show any such difference. Interestingly the stress level related to physical appearance was higher in male subjects compared to female equivalents. Varying association between behavioral risk factors i.e. eating pattern, smoking and alcohol consumption and stress was observed for OI and non OI subjects.

**Key words:** Stress, Orthopedically impaired, physical appearance, eating habits, smoking, alcohol consumption

### **INTRODUCTION**

Orthopedic or locomotor impairment signifies impairments (difficulties, disturbances and defects) of one's muscular or skeletal system (involving one's bones, joints, limbs and associated muscles) and/or nervous system which can be caused by a number of factors, like, congenital diseases, accidents, etc. <sup>(1)</sup> According to 'Individuals with Disabilities Education Act' (1990) the

term includes congenital anomaly (e.g. club foot, absence of some member, etc.), impairment caused by disease (e.g. poliomyelitis, bone tuberculosis, etc.) and impairment from other causes (e.g., cerebral palsy, amputations, fractures or burns that cause contractures). <sup>(2)</sup> Rehabilitation Council of India in 2001 has mentioned that locomotor disability is a person's inability to execute distinctive activities associated with

moving, both himself and objects, from place to place, and such inability resulting from affliction of musculoskeletal and, or nervous system. <sup>(3)</sup>

Physical disability may lead to emotional instability and stress due to various factors. The etiological factors which induce stress in the individuals with physical disabilities has acquired a centre stage of attention as there have been researches revealing various psychosocial disturbances like, elevated levels of depression in the physically disabled individuals. <sup>(4)</sup> There have been a significant focus on various psychosocial aspects, which have an impact on the generation of stress in the physically disabled individuals, like, the self concept of physically disabled has been explored, recognizing it to be an important psychological aspect influencing their effective rehabilitation and source of stress enhancement in facing day-to-day life circumstances. It has been revealed in studies done in Varanasi and Delhi that the self concept of physically disabled is significantly lower than their non-physically disabled counterparts. <sup>(5, 6)</sup> In non disabled adolescent population it has been found that boys have more physical concept than girls but the strength of association between physical self concepts and overall self concept in girls is higher than boys. <sup>(7)</sup> The levels of stress were found to be more in physically disabled females than males. <sup>(8)</sup> In rural Thailand study it was revealed that non disabled community felt that physically challenged women need special protection provided by family members, who, influenced their social acceptance as family members and also non disabled people deterred these women from exposure to wider community because of unintentional imposed overprotection and also, negative perceptions about physically disabled women have major impact on their social involvement. <sup>(9)</sup> In a study in Bangladesh, it

was reported that disabled women suffered more likely from the problems like “cannot marry” and “breakdown of marriage” than their male counterparts and in some cases huge dowry was paid to their bridegrooms. <sup>(10)</sup> These studies acknowledge the social perceptions, especially, regarding the physical appearance of the physically disabled women, which have an impact on their socialization processes.

The stress state in physically disabled may have an impact on the nutritional status as evident by a study which identified poor nutritional status in patients suffering from diabetic foot ulcers. <sup>(11)</sup> This reveals that physical disability is a multifaceted problem with multiple consequences affecting behavioral and health factors. The enhancement in the complexity of the situation is indicated by the revelation that 1 in 5 patient of orthopedic trauma was found to meet the criteria for psychological illness and psychosocial factors were associated with the reduced health –related quality of life. <sup>(12)</sup>

Associations have been found between unhealthy food consumption and perceived stress in females but not in males. <sup>(13)</sup> Stress has been found to have a significant role in contributing to underweight and overweight status, energy and food item consumption in Turkish women. <sup>(14)</sup> In a study on Iranian physically disabled children (6-12years) it was found that the malnutrition was more in disabled children as compared to non-disabled children and the prevalence was higher in girls than boys. <sup>(15)</sup>

Hence, the present study has the following objectives:

1. To assess the level of stress due to physical appearance in orthopedically impaired (OI) and non OI males.

2. To assess the level of stress due to physical appearance in orthopedically impaired (OI) and non OI females.
3. To study the relationship between behavioral health risk factors and stress in OI individuals.
4. To study the relationship between behavioral health risk factors and stress in non OI individuals.

**Hypotheses:**

The present study had the following hypotheses:

1. There is a significant difference in the level of stress due to physical appearance in OI and non OI males.
2. There is a significant difference in the level of stress due to physical appearance in OI and non OI females.
3. There is a relationship between the behavioral health risk factors and stress in OI and non OI males.
4. There is a relationship between the behavioral health risk factors and stress in OI and non OI females.
5. There is a relationship between the behavioral health risk factors and stress in non OI males and females.
6. There is a relationship between the behavioral health risk factors and stress in OI males and females.

**METHODOLOGY**

The present study is an exploratory research consisting of the following details:

- a. **Sample:** A sample of 80 (40 OI and 40 non OI) individuals were collected from rural and urban areas of Uttarakhand state, India. The sample consisted of 30 males (15 OI and 15 non OI) and 50 females (25 OI and 25 non OI).
- b. **Tools:**
  - i. Stress due to physical appearance: To assess the

degree of stress due to physical appearance the subjects were asked to report the level of stress on a scale of 0 to 3, in accordance to the increasing intensity of the experienced stress.

- ii. Behavioral health risk factors: A food frequency questionnaire was administered to gather the information regarding the eating habits like vegetarian or non vegetarian habit of eating, type and frequency of intake of snacks, junk foods, ready to eat food from market etc; smoking and alcohol consumption.

- c. **Statistical Analysis:** Chi-square was deployed for comparing the level of stress between OI and non OI individuals. The behavioral health factors were expressed in percentages for each group and Pearson Product Moment correlation method was used to find the association between the stress and behavioral health risk factors.

**RESULTS**

A total of 80 subjects (30 males and 50 females), of which 40 were non OI and 40 were OI were studied. The mean age was 33.5 years for male subjects and 32.2 years for female subjects. A 13 percent of males and 22 percent of females suffered from various illnesses viz. high BP, asthma, diabetes, gastric trouble, gout, UTI, stone.

**Stress due to physical appearance**

Level of stress was rated by scoring and it was observed that the mean stress score was 1.76 for OI females, 1.08 for non OI females, 1.73 for OI males and 1.53 for non OI males. A significant difference in the level of stress due to physical appearance

was seen between OI and non OI females. The OI males and non OI males did not showed any significant difference in the level of stress due to their physical appearance. An interesting observation was that the males, both OI and non OI suffered from higher degree of stress due to their physical appearance compared to non OI females though the difference was not significant, contradicting the orthodox belief that females are more concerned with their physical appearance than the males.

### **Association between behavioral risk factors and stress**

The behavioral risk factors were studied under three categories- eating habits, smoking and alcohol consumption.

- i. ***Eating habits and stress:*** The attributes studied under eating habits were vegetarian or non-vegetarian eating pattern, habit and frequency of snacking (junk food) and consumption of food from the market (ready to eat).

It was seen that 88 % of OI females and 60 % of non OI females were non-vegetarian and 80 % of OI males and 87 % of non OI males were non vegetarian. A positive correlation though slight was observed between eating non vegetarian food and stress for non OI males and females and OI males, whereas, a negative correlation was observed for OI females. An 88% of female subjects reported snacking, though the frequency of consumption of snacks which included junk foods was more for non OI females compared to OI females. Among male subjects 93% and 80% of OI and non OI males, respectively reported consumption of snacks with a high frequency of consumption by non OI males. A negative association between snacking and stress was found for all the groups except non OI females. Only half of the OI females reported consumption of cooked

food from market compared to 88% of non OI females. Out of which a negligible percent of 4.5% of OI females had it on weekly basis. A 73% of OI males and 80% of non OI males preferred market food with only 18% and 33 % taking food from market on weekly basis. An inverse relation between consumption of ready to eat food from market and stress was observed for all the three groups except non OI females.

- ii. ***Alcohol consumption and stress:*** A very low percentage of 28 and 8 non OI and OI females, respectively, reported consumption of alcohol, whereas, 53% and 47% of non OI and OI males consumed alcohol. A positive association between alcohol consumption and stress was elucidated for non OI males, non OI females and OI males but an inverse association was found for OI females.

- iii. ***Smoking and stress:*** None of the female in OI group reported smoking and only 4% of females in non OI group admitted smoking. 33.5% of OI and 40% of non OI males reported smoking. A positive association between smoking and stress was observed only for OI males.

Irrespective of gender difference, OI subjects showed positive correlation between level of stress and smoking as well as alcohol consumption. The non OI subjects showed positive association of stress with alcohol consumption, smoking, consumption of cooked food from market and non vegetarian food.

### **DISCUSSION**

Disabled people often face feeling of fear, guilt, pity and discomfort which may lead to increase in the stress experience. Tak et al <sup>(16)</sup> showed a significant correlation between physical disability and daily stress.

This is in line with our results where OI subjects had higher level of stress compared to their control counterparts. The level of stress was significantly higher for the OI female which is supported by a study <sup>(17)</sup> where women with physical disabilities reported higher level of perceived stress, although, there was not a significant difference in the level of stress between male and female OI individuals. This may be due to coping with stress and adaptability with time. A study <sup>(18)</sup> elucidate that the total stress in 99 disabled people did not seem to be unusually high.

Perceived stress is a negative affective state that individuals may attempt to relieve or cope with eating, smoking or drinking alcohol more often. Previous studies suggest that elevated stress levels affect eating behavior <sup>(19)</sup> which are associated with intake of food which are highly palatable and energy dense, <sup>(20)</sup> rich in saturated fat. <sup>(21)</sup> This may be due to release of cortisol during chronic stress which stimulates appetite. Coping stress with eating is more pronounced in females than males <sup>(22)</sup> who are inclined towards disordered eating <sup>(19)</sup> and eating more unhealthy food than men. <sup>(23)</sup> Though a contradicting study <sup>(24)</sup> find that males tend to eat more under stressful condition than females. In the current study a positive association between stress and unhealthy eating was found for only non OI females which partially support the earlier studies that women tend to eat healthier in stressful state but same does not go for disabled females as their access to the eatables from market may be hindered due to their physical disability and stigma associated with the disability <sup>(25)</sup> especially in the Indian rural society.

Besides affecting eating response, stressful state also has an impact on behavioral factors such as alcohol consumption and smoking. Stress leads to an

increase in smoking and alcohol consumption <sup>(26)</sup> and influence of stress on smoking was more for girls than boys. <sup>(27)</sup> Though a study <sup>(28)</sup> reveal that the association of stress was high with smoking compared to alcohol drinking. In the present research, a positive association between alcohol consumption and stress was elucidated for non OI males, non OI females and OI males but an inverse association was found for OI females. A positive association between smoking and stress was observed only for OI males.

## CONCLUSION

After the analysis of the results following conclusions could be made:

1. The OI females experience more stress due to their physical appearance than their non OI female counterparts. Interestingly, males (OI and non OI) have reported higher stress due to physical appearance than non OI females.
2. There is a positive relationship between stress and alcohol consumption in non OI males and females.
3. There is a positive relationship between stress and alcohol consumption in OI males but negative relationship exists in OI females.
4. Frequency of junk food consumption is higher in non OI females than OI females and also positive association of snacking with stress and consumption of ready-to-eat market food is only present in the group of non OI females. Positive relationship exists in stress and non vegetarian food consumption for non OI females and males and also OI males but inverse relationship is present in OI females.

5. Smoking was positively associated with stress in OI males only. Some non OI females (belonging to urban region of Uttarakhand) reported smoking but none of the OI females revealed the same.
6. The negative associations of smoking, alcohol consumption, non vegetarian food consumption and lower frequency of junk food consumption in OI females may be associated with cultural barriers for OI females, which hinder the accessibility of these commodities.

The results revealed by the study cannot be generalized due to the small sample size but not much of the researches have been conducted in Indian cultural perspective to assess the stress of physical appearance in OI individuals and its association with behavioral health risk factors, hence, the present results can play a vital role in initiating further more statistically refined future researches.

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