

## ORIGINAL ARTICLE

**Assessment of Suboptimal Health Status among Young Adults and Its Association with Their Demographic Factors**

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**ABSTRACT**

**Objective:** To assess the suboptimal health status among young adults and its association with their demographic factors visiting institute of dentistry CMH, Lahore

**Design of the Study:** It was a cross-sectional study.

**Study Settings:** This study was carried out at Outpatient Department of Dentistry Combined Military Hospital, Lahore from August 2020 to January 2021.

**Material and Methods:** A cross-sectional study was carried out with sample of 384 young adults visiting institute of dentistry CMH, Lahore. Suboptimal health status was using the "Suboptimal Health Measurement Scale" ver-1.0. Information of demographics and information related to affecting to lifestyle behaviors were evaluated with a questionnaire. The associations between demographic information, lifestyle behaviors were checked by applying a Pearson coefficient Chi-square test.

**Results of the Study:** A total of 384 participants were included in this study. The mean age of the participants was a 27.79±5.23 year with 53.2 % being women. Age group 19-28 years had high sub-optimal health 51.7% (199), while participants falling in age category 29-39 years had low sub-optimal health 48.3% (186). There was a strong association between the two independent variables. Pearson chi square (1) = 4.152, p value 0.0.

**Conclusion:** It was found that suboptimal health status was significantly associated with demographics of young adults, environmental factors and life style behaviors in both males and females.

**Keywords:** Suboptimal health status, demographic factors, demographic factors scale, young adults

**INTRODUCTION**

Oral health is defined by WHO as a condition of being free from oral infection and sores, facial and mouth pain, throat and oral cancer, tooth loss, gum (periodontal) disease, and tooth decay and other disorders and diseases that prevents a somebody from chewing, biting, speaking, smiling, and other psychosocial health.<sup>1</sup>

Now a days globally a significant challenge is oral health because in 2010, "Global economic burden of dental diseases" reported that 431 billion dollars out of which 306 billion \$ spend on direct treatment and 136 billion \$ was incurred on indirect productivity cost because of periodontitis, caries and tooth loss.<sup>2,3</sup> In public health there is a key role of oral hygiene and an essential arm of general health. Biofilm of bacteria makes subgingival and supragingival plaque so in result of this dental caries formed.<sup>4</sup>

The very common things which disturb the quality of life of an individual related to its oral health, globally periodontal disease are very common especially in those countries which are developing. According to WHO periodontal disease effect 18% of Pakistani population in them 28% leads to periodontitis.<sup>5,6</sup> "Suboptimal health status (SHS)" is defined as the "third state" in the middle of health and disease, having characteristics of conversion from health to disease.

As per WHO global survey 2013 just 5% individuals may be categorized as truly healthy, twenty percent were

sick and 75% peoples were classified as in suboptimal health status.<sup>7</sup> If suboptimal health status handled properly, body of a human may be converted to a healthy state in other words we can overcome too this problem.<sup>8</sup>

That's why it is important to evaluate the factors inducing suboptimal health status for its prevention and intervention. Still many peoples are unaware that they are affecting from suboptimal health status.<sup>9</sup>

The aim of the study is to assess the effect of suboptimal health on the oral health of adults visiting . This study will provide vital information and data on the association of oral health and the components of sub-optimal health i-e; physiological, psychological, and social aspects of adults. This will serve as the basis for health education and promotion as well as the awareness programs on maintaining good oral health along with the general health. It will also help to improve upon the existing knowledge and data on maintaining oral health in Pakistan.

**MATERIAL AND METHODS**

This was a cross-sectional study which was carried out at Outpatient Department of Dentistry Combined Military Hospital, Lahore from August 2020 to January 2021. The study was approved by the ethics committee of the institute. Informed consent was obtained from patients participating in the study. The sample consisted of 350 young adults (19-39 years) visiting institute of dentistry CMH, Lahore. Patients were excluded who were not willing

to participate, falling in the age range of 19-39 years, physically or mentally differently abled people. The estimated sample size was 384, it was calculated using Open Epi software version 3.01. The prevalence of 50% was taken. The sample was calculated with 95% confidence interval and a precision(e) of 5% and non-response rate of 5%. Simple Convenience Sampling was used to select sample.

The data collection tool was based on three sections i-e: demographic characteristics and sub-optimal health status. The sub-optimal health questionnaire is a widely used self-administered scale to measure physical, psychological, and social aspects of health. The reliability of both the scales was measured through Cron back's alpha co-efficient.

All this information was recorded in a predesigned proforma along with age and gender of the patient. Age has been described by mean ±SD while gender and oral mucosal lesions and its types have been described by frequency and percentage. Chi-square test has been used considering p≤0.05 as significant.

**RESULTS**

A total of 384 participants were included in this study. The mean age of the participants was a 27.79±5.23 year with 53.2 % being women. Detailed statistics of socio-demographics characteristics is given in (Table 1). The total SHSQ-25(after computation) had a cut off 35 taken from the previous parent article. In the questionnaire, the raw scores of 1 to 5 were reported as 0 to 4 (Kupaev, Borisov, Marutina, Yan, & Wang, 2016). Using cut off-35, it is further categorized into high sub-optimal health and low sub-optimal health (Figure 1).

In this part of the questionnaire 31.4% of the participants "never" felt exhausted in the past 3 months. Participants (n=121; 31.4%) responded that they "never" felt fatigued that could not be substantially alleviated by rest. About 1/3 of the participants (n=113; 29.4%) said they "often" felt lethargic when working while 1/2 participants (n=98; 25.5%) "Never" had suffered from headaches in the preceding 3 months. A small portion of the study population around 30% showed "never" had sleep problem, trouble with short term memory, problem with responding quickly, difficulty in concentration, getting distracted for no reason, felt nervous/jittery and caught a cold in the past 3 months (Table 2).

Chi square of independence was run to assess the association of demographic factors with Sub-Optimal health and Oral Health of Young adults. It was also run to find the association between Sub-Optimal health and Oral Health of adults. Pearson chi-square was carried out to find the association of age groups with sub-optimal health. Both were independent variables. Age group 19-28 years had high sub-optimal health 51.7% (199), while participants falling in age category 29-39 years had low sub-optimal health 48.3% (186). There was a strong association between the two independent variables. Pearson chi square (1) = 4.152, p value 0.04.

Table 1: Statistics of socio-demographics characteristics

Variables	N (%)
<b>Gender</b>	
Male	179(46.5%)
Female	205(53.2%)
<b>Marital Status</b>	
Married	168(43.6%)
Unmarried	216(56.2%)
<b>Pregnancy</b>	
Yes	18(4.7%)
No	365(94.8%)
<b>Level of Education</b>	
Undergraduate	103(26.8%)
Graduate	186(48.3%)
Postgraduate	94(24.4%)
<b>Currently Employed</b>	
Yes	198(51.4%)
No	182(47.3%)
<b>Family Composition</b>	
Live alone	43(11.2)
With family	340(88.3%)
<b>Smoking</b>	
1 pack/day	45(11.7%)
>1pack/day	30(7.8%)
No	308(80%)
<b>Dental Visits</b>	
Once in 6 months	95(24.7%)
Once in a year	288(74.8%)
<b>Teeth Brushing</b>	
At least Daily	326(84.7%)
Sometimes	57(14.8%)
<b>Substance for teeth brushing</b>	
Toothpaste	380(98.4%)
Any other substance	4(1%)
<b>Co-morbidities</b>	
Yes	44(11.5%)
No	339(88.1%)
<b>Exercise</b>	
Not at all	149(38.7%)
1-2 times/week	154(40%)
1-2 times/month	79(20.5%)

Table 2: Descriptive statistics of sub-optimal health (independent variable

ITEMS	Never N (%)	Occasionally N (%)	Often N (%)	Very Often N (%)	Always N (%)
Exhausted	121(31.4%)	70(18.2%)	100(26%)	66(17.1%)	27(7%)
Fatigue	121(31.4%)	94(24.4)	73(19%)	80(20.8%)	16(4.2%)
Lethargic	95(24.7%)	88(22.9%)	113(29.4%)	68(17.7%)	20(5.2%)
Headache	98(25.5%)	70(18.2%)	82(21.3%)	93(24.2%)	41(10.6%)
Dizziness	125(32.5%)	96(24.9%)	92(23.9%)	60(15.6%)	11(2.9%)
Eyes ached	99(25.7%)	101(26.2)	88(22.9%)	69(17.9%)	27(7%)
Throat	167(43.4%)	85(22.1%)	77(20%)	45(11.7%)	18(2.6%)
Joints stiffness	112(29.1%)	102(26.5%)	88(22.9%)	64(16.6%)	18(4.7%)
Shoulder pain	101(26.2%)	96(24.9%)	84(21.8%)	73(19%)	30(7.8%)
Heavy legs	134(34.8%)	92(23.9%)	80(20.8%)	43(11.2%)	35(9.1%)
Breaths	191(49.6%)	92(23.9%)	61(15.8%)	27(7%)	13(3.4%)
Congestions	229(59.5%)	70(18.2%)	50(13%)	24(6.2%)	11(2.9%)
Palpitations	192(49.9%)	65(16.9%)	63(16.4%)	41(10.6%)	20(5.2%)
Appetite	167(43.4%)	86(22.3%)	75(19.5%)	42(10.9%)	14(3.6%)

Heart burn	168(43.6%)	72(18.7%)	77(20%)	52(13.5%)	15(3.9%)
Nausea	165(42.9%)	104(27%)	69(17.9%)	38(9.9%)	8(2.1%)
Tolerance to cold	191(49.6%)	86(22.3%)	58(15.1%)	41(10.6%)	8(2.1%)
Sleep problem	127(33.0%)	91(23.6%)	61(15.8%)	72(18.7%)	33(8.6%)
Diff waking up	164(42.6%)	89(23.1%)	55(14.3%)	44(11.4%)	32(8.3%)
Memory	136(35.3%)	81(21%)	79(20.5%)	58(15.1%)	29(7.5%)
Quick response	142(36.9%)	95(24.7%)	85(22.1%)	45(11.7%)	17(4.4%)
Poor conc.	114(29.6%)	83(21.6%)	97(25.2%)	64(16.6%)	26(6.8%)
Distracted	132(34.3%)	73(19%)	74(19.2%)	75(19.5%)	30(7.8%)
Nervous/jittery	139(36.1%)	114(29.6%)	54(14%)	44(11.4%)	33(8.6%)
Caught cold	189(49.1%)	94(24.4%)	59(15.3%)	30(7.8%)	12(3.1%)

Table 3: Association of demographic factors with sub-optimal health

Factors	High Sub-Optimal Health f (%)	Low Sub-Optimal Health f (%)	Total	Chi-Sq	p-value
<b>Age(years)</b>					
19-28yrs	101(26.2%)	98(24.4%)	199	4.152(1)	0.041*
29-39yrs	76(19.7%)	110(28.6%)	186		
<b>Gender</b>					
Male	69(17.9%)	110(28.5%)	179	6.431(1)	0.01*
Female	106(27.5%)	100(26.0%)	206		
<b>Marital Status</b>					
Married	76(19.7%)	94(24.4%)	170	0.69(1)	0.79
Unmarried	116(30.1%)	99(25.7%)	215		
<b>Education Level</b>					
Under-Graduate	57(14.8%)	48(12.5%)	105	2.90(2)	0.407
Graduate	105(27.3%)	82(21.3%)	187		
Post-Graduate	48(12.5%)	45(11.7%)	93		
<b>Co-morbidities</b>					
Yes	21(5.45%)	187(48.6%)	208	222.98(1)	0.001*
No	151(39.2%)	26(6.75%)	177		
<b>Exercise</b>					
Never	37(9.6%)	89(23.12%)	126	7.90(2)	0.019*
1-2 times/week	74(19.2%)	44(11.4%)	118		
1-2 times/month	65(16.9%)	76(20%)	141		
<b>Diet</b>					
Healthy diet	138(35.8%)	97(25.2%)	235	6.627(1)	0.036*
Non healthy diet	72(19.5%)	78(20.3%)	150		

## DISCUSSION

The key purpose of current research is to well understand present conditions of SHS in young adults as well as their demographic factors influencing the SHS. In this study we noted the prevalence of suboptimal health status was 179(46.6%). Prevalence of our study was similar to study of Bi J et al. (2013) and Liang et al. (2014) in population of China.<sup>10, 11</sup>

However SHS prevalence is very high the reason may yet there is no clear clinical criteria is present for suboptimal health status. In different studies there are many questionnaires have been developed and assessed like "Multidimensional Sub-Health Questionnaire of Adolescents (MSQA)" which is formed targeting the adolescents and the "Suboptimal Health Status Questionnaire-25 (SHSQ-25)" which is aimed at psychological and physiological suboptimal health status.<sup>12</sup> In our study SHMS version 1.0 used which is a consistent questionnaire used to evaluate the respondent's health status and it consist multidirectional, self-report sign inventory.<sup>12</sup>

We observed it in our study that some demographics of young adults is statistically associated with SHS such as age and gender (Table 3) More young adults aged 19-28 years old were categorized with suboptimal health status as compare to aged category of 29–39 years old.

This finding of our study is not matched with other studies, which reported that younger adolescents had improved significances.<sup>14</sup> We think that the reason behind this is that majority of young adults 19-28 years old have

huge pressure to get good earning sources or any setting up in any business.

Majority of students sit indoor and study the whole day, go outdoor rarely for exercise and often not concentrate on their nutrition, which harmed their health. We also observed that adolescents from rural areas had high prevalence of suboptimal health status as compare to urban areas.

Those young adults who belonged to rural areas mostly found the living environment when they go to college level which usually located in big cities are totally different from their hometowns. They to have adjusted themselves in very short time also influenced by educational pressure which pushes them to developing suboptimal health status.<sup>14</sup> As regards to demographic, age was significantly linked with suboptimal health status in all young adults. But, association with suboptimal health status was not observed between their educational statuses.

For participants of urban areas particularly males who are permanently living in urban areas, it was noted that those peoples were not easily disposed to suboptimal health. These findings are closely related to the picture of the real life in culture that urban-rural migrant employees have very high level stress in life and stress of work as compare to urban-native inhabitants.<sup>15,16</sup>

Level of education was observed to be significantly linked with suboptimal health status in all study respondents particularly in males, mean respondents having higher level of education have a higher chance of

getting suboptimal health status. The reason may be due to high rank jobs having high pressure and working many hours as compare to peoples with lower levels of education.<sup>17,18</sup> The limitation of our study include questionnaire was used which was self-reported, interviews was not conducted about suboptimal health status of young adults.

## CONCLUSION

It was found that suboptimal health status was significantly associated with demographics of young adults, environmental factors and life style behaviors in both males and females.

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