

# ASSESSMENT OF HEALTH LOCUS OF CONTROL WITH ANXIETY AMONG JUNIOR STUDENTS IN BAREILLY CITY INDIA – A CROSS SECTIONAL SURVEY

Original  
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Paper

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**ABSTRACT : Aim-**Assessment of health locus of control with anxiety among junior students in Bareilly city.

**Materials and Methods :** A cross-sectional survey was conducted among junior students aged 18 to 25 years in Bareilly city of Uttar Pradesh State in India. Dental anxiety was measured using Modified dental anxiety scale (MDAS) and with 18-item MHLC scale is an excellent method for assessing health attitude and has been accepted by researchers as a concept for explaining behaviour. The data obtained were analysed using Analysis of variance (ANOVA) followed by Tukey's Post hoc test. Results The distribution of Multi-Dimensional Health Locus of Control Mean Scores was analyzed based on Dental Anxiety Status of the Subjects and there was significant difference between the mild, moderate and severe scores under internal locus, chance locus and powerful locus ( $p=0.00$  each). Conclusion drawn from the present study was that 'internal' was the most powerful aspect of MHLC among all three anxiety groups.

**Key words :**

Cross-sectional survey,  
Locus of Control,  
Dental anxiety

**Conflict of interest:** Nil

**No conflicts of interest :** Nil

**INTRODUCTION :** Locus of control (LOC) refers to the degree to which an individual believes the occurrence of reinforcements. It is contingent on his or her own behavior.[1] There is significant evidence that anxiety and depression are associated with an external locus of control and that patients with major depression, social phobia, mixed anxiety with depression disorder. The panic disorder also have significantly greater external locus of control scale scores as compared to a control group.[2]

The concept of Locus of control (LOC) was introduced by Rotter in the 1960s. This theory refers to individual's beliefs about whom and what controls that events happening to them. The most widely used instrument within the health arena, based on Rotter's model was developed and it is called the Multidimensional health Locus of control (MDLOC). The instrument assesses to what degree individuals interpret how their health depends on their own ability and efforts or on other factors, like powerful other persons, or is simply the result of fate or chance. The Multidimensional health locus of

control has been used in studies of various health behaviors, both regarding general and oral health.[3,4,5,6,7]

Anxiety and fear has been a constant dynamic of the dental patient since the beginning of mankind.[8]. Dental anxiety is a multidimensional complex phenomenon, and never a single variable can account exclusively for its development.[9] Dental anxiety is a relatively common condition, with prevalence estimates ranging from approximately 5% to 30% in the general population (1–5).10 Depending on the population dental anxiety is a multidimensional psychological construct which needs to be measured. Modified Dental Anxiety Scale (MDAS) is the most commonly reported tool to measure the dental anxiety. 11 Hence, the present study was conducted with an aim to assess health locus of control with anxiety among junior students in bareilly city.

**MATERIALS AND METHODS :** Cross-sectional survey was conducted among junior students aged 18 - 25 years 2016

in Bareilly. Ethical clearance was obtained from ethical committee. Random selection was done by using the college roster as a sampling frame. Voluntary informed consent was obtained from all the selected subjects after clearly explaining the purpose and procedures of the study.

The sample size estimation for this study was done based on prevalence of earlier

Study 12 A total of 632 subjects (male and female) aged between 18-25 years of age were randomly selected for the study. The questionnaire were divided into two parts, the first part contains the demographic profile, which included age and gender in junior students. The other group included the assessment of dental anxiety which were captured by the Modified dental anxiety scale (MDAS). The questionnaire were translated in local language (Hindi) and prevalidated as MHLC scale.

Participants were allowed to choose from five responses (scored 1 to 5), ranging from 'not anxious' to 'extremely anxious'. People with total values between

5 to 18 were categorized in the low dental anxiety group and those with total values between 19 and 25 in the high anxiety group. This concept was developed by Wallston et al., 1978 to measure the extent to which individuals believe that their health is influenced by their own behavior or external causes. The concept is multidimensional. The first dimension is called "Internal Health Locus of Control" which represents a person's belief about the impact of their own actions on health outcomes. The second dimension is the "Powerful others Health Locus of Control" which focus on belief about the influence of important people outcomes. The third dimension is the "Chance Health Locus of Control" which refers to the effect of chance or fate on outcome. The 18-item MHLC scale is an excellent method for assessing health attitude and has been accepted by researchers as a concept for explaining behaviour.<sup>13</sup> It consists of three six-item scales that also use the Likert Statistical comparisons were done using 'Analysis of Variance followed by Tukey's Post hoc test.<sup>14</sup> In the previous study the authors have found a correlation between Modified dental anxiety scale (MDAS) scores and MHLC scores.

## RESULTS

Table 1 shows the age distribution of study subjects. Out of 632 subjects a majority 414(65%) of them belonged to below 20 years, 195(31%) subjects were between 21- 25 years and 23(3%) subjects were between 26-30 years.

Table 1: Distribution of Study subjects based on Age

Age Groups	Frequency	Percentage
<20	414	65%
21-25	195	31%
26-30	23	3%
Total	632	100%

Table 2 shows the Gender distribution of study subjects. Out of 632 subjects a majority 536(84.8%) of them were females and 96(15.2%) subjects were males.

Table 2: Distribution of Study subjects based on Gender

Gender	Frequency	Percentage
Female	536	84.8%
Male	96	15.2%
Total	632	100%

Table 3 shows the distribution of mean scores of MDHLOC among subjects stratified based on MDAS index. The mean MDHLOC scores "INTERNAL" category are 3.77(0.86), 4.27(0.99), 4.70(0.93) in subjects with mild, moderate and severe anxiety respectively. These differences were found to be statistically significant with  $P=0.00$ .

Table 3. Distribution of Multi-Dimensional Health Locus of Control Mean Scores based on Dental Anxiety Status of the Subject

	INTERNAL				CHANCE			POWERFUL / OTHERS		
	N	Mean	SD	CI	Mean	SD	CI	Mean	SD	CI
MILD < 8	41	3.77	0.86	3.49,4.05	3.70	1.10	3.38,4.23	3.91	1.01	3.58
MODERATE 9-16	406	4.27	0.99	4.17,4.36	3.21	0.92	3.12,3.30	4.24	1.03	4.14
SEVERE 16-25	185	4.70	0.93	4.56,4.83	3.53	1.06	3.38,3.69	4.61	.90	4.48
F=20.05, P=0.00					F=9.75, P=0.00			F=12.63, P=0.00		

The mean MDHLOC scores in "CHANCE" category are 3.70(1.10), 3.21(0.92), 3.58(1.06) in subjects with mild, moderate and severe dental anxiety respectively. These differences were found to be statistically significant with  $P=0.00$ . The mean MDHLOC scores in "POWERFUL/OTHERS" category are 3.91(1.01), 4.26(1.03), 4.61(.90) in subjects with mild, moderate, and severe dental anxiety respectively. These differences were found to be statistically significant with  $P=0.00$ .

Table 4 shows the post-hoc results for the comparisons of mean MHLOC scores stratified on the basis of anxiety status.

Only the difference in MDLOC, under the “CHANCE” category between mild anxiety and severe anxiety along with the difference in mean MDLOC under “POWERFUL /OTHERS” between mild and moderate anxiety were found to be statistically non-significant with  $P=.57$  and  $.11$  respectively.

Table 4: Mean differences in multidimensional HLOC scores in different dental anxiety groups

DEPENDENT VARIABLE (I) MDAS CODED (J) MDAS CODED	MEAN DIFFERENCE (I-J)	SIG	95% CONFIDENCE INTERVAL	
			LOWER	UPPER
INTERNAL				
MILD ANXIETY TO MODERATE ANXIETY	-2.96	0.00	-5.26	-.66
MILD ANXIETY TO SEVERE ANXIETY	-5.54	0.00	-7.95	-3.12
MODERATE ANXIETY TO SEVERE ANXIETY	-2.57	0.00	-3.79	-1.36
CHANCE				
MILD ANXIETY TO MODERATE ANXIETY	2.95	0.00	.664	5.26
MILD ANXIETY TO SEVERE ANXIETY	1.03	0.57	-1.39	3.46
MODERATE ANXIETY TO SEVERE ANXIETY	-1.92	0.00	-3.14	-.698
POWERFUL/ OTHERS				
MILD ANXIETY TO MODERATE ANXIETY	-2.00	0.11	-4.34	.346
MILD ANXIETY TO SEVERE ANXIETY	-4.23	0.00	-6.69	-1.76
MODERATE ANXIETY TO SEVERE ANXIETY	-2.22	0.00	-3.47	-9.86

**DISCUSSION :** Anxiety related to the dental environment is a problem suffered by many patients worldwide, and it remains a significant challenge in providing dental care. Anxiety is an emotional state that helps normal individuals defend themselves against a variety of threats and dental anxiety refers to patient's specific response towards dental situation- associated with stress. There is evidence that anxiety and depression are associated with the external locus of control. Studies have also revealed that perceived health locus of control can play a significant role in predicting dental anxiety.

There are ample number of studies reported in literature which are done to assess association between dental anxiety and health locus of control. The evidence for such associations is ambivalent and similar to the studies of S. Acharya, Deva Priya Appukuttan et al, Moore R et al, Mohd. G. Sghaireen et al, Sohn W.[15,2,16,17,18]

In case of mean differences of multidimensional HLOC scores in different dental anxiety groups the study subjects showed positive correlation.

In the internal dimensions of locus of control, the most significant score was found to be 2.57. This might be detrimental as it might prevent the patient from accessing essential dental care needed for maintaining optimal oral health ( $p=0.00$ ).

In the chance dimension of locus of control, the most significant was found to be 1.03 from mild anxiety to severe

anxiety with shows a non- significant or negative association of health locus of control with dental anxiety ( $p=.57$ ).

In the powerful dimension of locus of control, the most significant score was found to be 2.00 from mild to moderate anxiety ( $p=.11$ ). It indicates that subjects who had high internal locus of control had higher levels of dental anxiety.

Limitation Further studies are needed to address the dental anxiety levels in different populations, which will help dental care providers to better manage their patients.

Conclusion, the findings of this study suggest that prevalence of dental anxiety was high among the study subjects. Amongst the various socio-demographic factors, gender were found to be significantly associated with dental anxiety and Multidimensional health locus of control.

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