

Impact of On-line Learning on Achievement Motivation among Students of Health Sciences during Covid-19 Pandemic

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Abstract: The COVID-19 pandemic has imposed a jail like restriction and students had to do a quick transition from off-line to on-line mode. Health science studies are more practically oriented and hence students faced a greater burden of remote learning. This study was undertaken with aim of understanding the effect of on-line learning during Covid-19 on Achievement Motivation. This interventional study consists of health science undergraduate college students, both male and female in the age group of 17 to 24 years (221 students). Data was collected through Achievement Motivation Scale. Descriptive and Chi-square test was used to analyze the data. Average need motivation was shown by 52.6% of the students. None of the students showed high motivation. Above average and below average were 18.0% and low and lowest motivation were 6.6% and 4.8% respectively. Significant differences were also found in achievement motivation across different health sciences streams, age, gender, geographic location, internet connectivity. Policy makers should take concrete measures to make on-line classes more effective so that the students get the “real-world” learning incorporated with audio-visual aids, engaging them and making them more creative in their thinking, at the same time making on-line teaching more enjoyable.

Keywords: Covid-19, students, on-line learning, achievement, motivation, restrictions

Introduction:

Covid-19 has affected all sectors worldwide including the educational system which resulted in temporary college closures and home confinement for the students [1]. Teachers taught from home and the students learnt from home by attending the on-line classes. This quick transition of teaching-learning from off-line mode to on-line mode was found difficult to adjust by many students. Hence there was a heavy strain on students as well as teachers [2]. Not all students had their personal android phones, or laptops with the required Wi-Fi connection and these definitely raised concerns with students and parents as well as educators [1]. Remodeling their home environment as per classroom became difficult. A quiet study environment at home during this pandemic with all family members together round a clock was another arduous task. Social interactions, including picnics, shopping, and sports, all came to a standstill. Students who could not adapt to this situation suffered. Even studies on mental health during this phase showed an alarming increase in mental health symptoms in youth, especially anxiety and depression [3]. With poor mental health, it is evident that even academic outcomes, especially their achievement motivation would also be affected. In fact, some research findings suggest that when individuals are struggling with mental health symptoms, they tend to also exhibit poor motivation toward learning [4]. A student's achievement motivation is based on some parameters like need for achievement, anticipation of success, and also the incentive value of success. What type of achievement motivation construct a student adopts towards classroom teaching depends on extrinsic and intrinsic factors [5]. Hence the importance of this study in the wake of the Covid-19 pandemic.

Achievement motivation, abbreviated n Achievement, is a crucial factor of aspiration, effort, and persistence. Here, achievement specifically emphasizes the relevance of accomplishment and attainment with effort which is involved [6]. Motivation on the other hand typically relates to an individual's rationale for engaging in an activity, the level at which the individual pursues the activity with persistence [7]. Achievement motivation concept can be traced back to as early as 1900s with studies such as “success and failure” (Sears 1942) [8], “ego-involvement” (Allport 1943) [9], and “level of aspiration” (Lewin et al. 1944) [10]. The concept of the need for achievement was introduced by American psychologist H. Murray (1938). More work in this regard was done by McClelland. According to him the competitive success with some standard of excellence is considered as the need for achievement [11]. Academic achievement is the gross amount of knowledge which a student derives from the learning process. This knowledge is gained from the instructions the students receive at the college along with the assignments given. The college thus provides a wide variety of achievement experiences than does the family [12]. Hence their importance in educational researchers and other related disciplines. Studies show that college students study habits are not the same during regular colleges and holidays. There is always a decrease in study habits during holidays which is normal and expected [13]. Students stayed at home and it was like a holiday situation initially, later with increase in lockdown all colleges switched to on-line classes. Definitely, no one was prepared for such learning. Health science studies are more practically oriented. It is more of practicals and less theory as they move higher in their course. Hence just having on-line classes would make it difficult for them to concentrate and study, at the same time

becoming clearer in their concepts. Hence the study to evaluate the achievement motivation in health science students and to understand other variables having impact on achievement motivation levels.

Aim:

The aim of the study is to evaluate the impact of on-line learning on achievement motivation among students of health sciences during covid-19 pandemic.

Hypothesis:

1. There will be significant difference in achievement-motivation levels among health science students across gender during COVID- 19 pandemic.
2. There will be significant difference in achievement-motivation levels among health science students across age group during COVID- 19 pandemic.
3. There will be significant difference in achievement-motivation among health science students across different academic streams (health sciences) during COVID- 19 pandemic.
4. There will be significant difference in achievement motivation among health science students across type of families (nuclear and joint) during COVID- 19 pandemic.
5. Students with good internet connection will show higher achievement motivation than those with poor internet connectivity.
6. There will be significant difference in achievement motivation among health science students staying in rural and urban areas.

Variables:

Independent variable: Online Teaching

Dependant variables: Achievement-Motivation

Extraneous variables: Gender, age, type of family, location, internet connectivity.

Study Design and Methods:

Research Design:

This was an Interventional study. The research approach was one group post-test only study

Setting:

The study took place in health science colleges in Nagpur district from a tribal region of Hingna Taluka. This was selected as the researcher had easier access to the students of health science streams. This campus had colleges of BSc Nursing, GNM, Ayurveda, and Physiotherapy.

Study Population:

The study population consisted of undergraduate college students, both male and female in the age group of 17 to 24 years. The students belonged to BSc Nursing, GNM, Ayurveda, and Physiotherapy, who were using online teaching modality for at least 3 months. This study was conducted in October-November 2020. Students with CORONA positive status of self or any of the family member and those having one or more family members with severe acute or chronic disease condition were excluded from this study. The sampling technique was non-probability convenient sampling. The sample size was 221.

Data Collection:

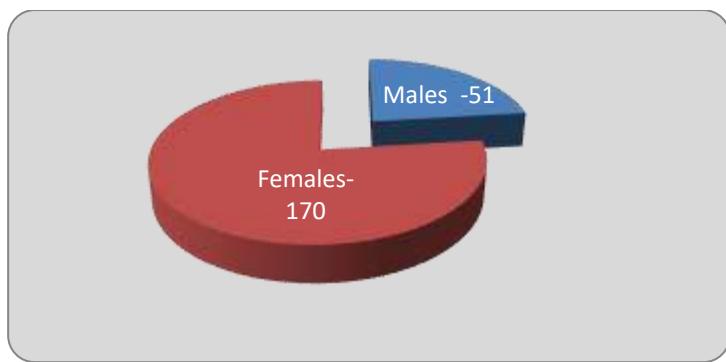
Section A consisted of demographic data sheet with baseline information such as age, gender, type of family (nuclear, joint), Stream/Discipline of health Science (BSc Nursing, GNM, Ayurveda, Physiotherapy), location (urban/rural) and type of internet connectivity. Section B was the Achievement motivation Scale (n-Ach) by Dr. Pratibha Deo and Dr. Asha Mohan (2011). It consists of 50 items divided into 15 factors. There are 13 negative and 37 positive statements. The final scores range between 0 to 200. The final scores are converted into Z-score.

The questionnaire was given online to the participants after a telephonic conversation explaining all the points about answering and 30 minutes was given to each participant. Out of the 225 forms which were given out, all were filled and returned but only 221 were usable. There was 100% return rate of questionnaires.

Results:

The results of this study are presented graphically as well as numerically. Statistical analysis done using descriptive and inferential statistics using chi-square and unpaired t test and software used in the analysis was SPSS 27.0 version. $p < 0.05$ is considered as level of significance. Figure 1,2,3 and 4 show the characteristic of the research sample.

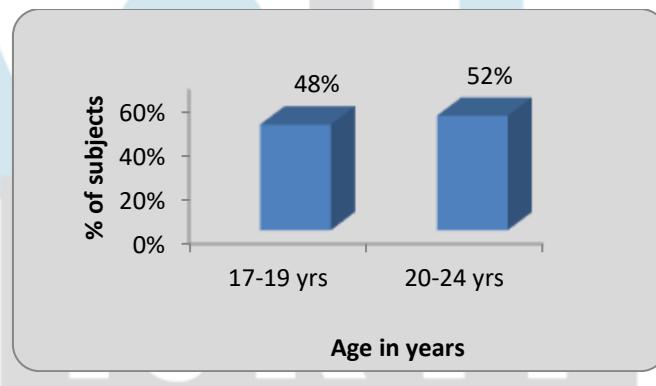
Figure 1 shows the distribution of subjects according to their gender. The sample consists of 221 participants, out of which 51 are males and 170 are females ($N=221$; $N_m=51$; $N_f=170$).



Gender	No of subjects	Percentage
Male	51	23.1
Female	170	76.9
Total	221	100

Fig 1: Distribution of subjects according to their gender

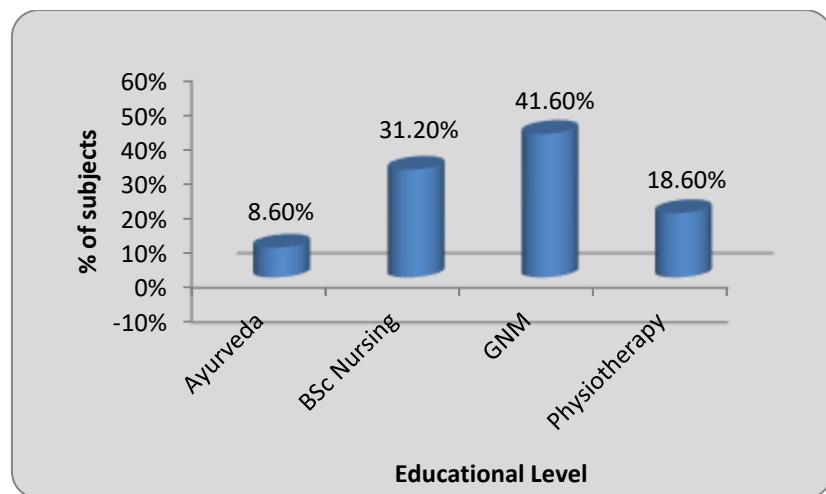
Figure 2 shows the distribution of subjects according to their age in years. For study purpose this was divided into two groups, that is, ages 17 to 19 early college years and 20 to 24 higher college years.



Age in years	No of subjects	Percentage
17-19 yrs	106	48
20-24 yrs	115	52
Total	221	100

Fig.2: Distribution of subjects according to their age in years

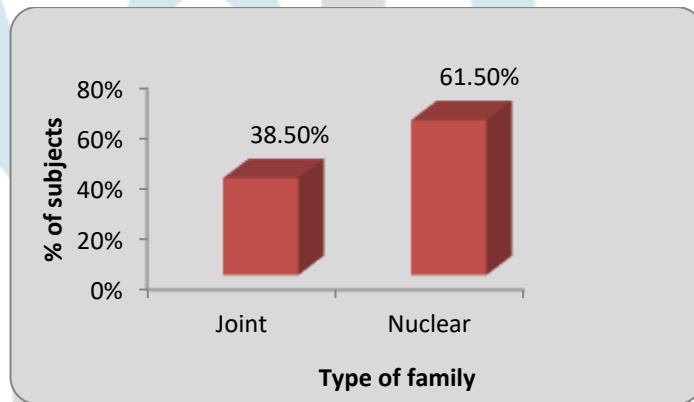
Figure 3 shows the distribution of subjects according to their education. The highest number of participants were the GNM students (92) followed by BSc Nursing (69), Physiotherapy (41) and Ayurveda (19).



Education	No of subjects	Percentage
Ayurveda	19	8.6
BSc Nursing	69	31.2
GNM	92	41.6
Physiotherapy	41	18.6
Total	221	100

Fig.3: Distribution of subjects according to their education

Figure 4 shows the distribution of subjects according to their family type. 38.5 % belonged to Joint family and 61.50% belonged to nuclear family.



Type of family	No of subjects	Percentage
Joint	85	38.5
Nuclear	136	61.5
Total	221	100

Fig.4: Distribution of subjects according to their type of family

Figure 5, shows the comparison of achievement motivation among different disciplines of health science students. Over all 53% of students are having average motivation while 18% are having above average and below average motivation respectively. It can be inferred that students belonging to BSc Nursing and Physiotherapy are highly motivated, followed by GNM whereas Ayurveda stream students are the least motivated.

Fig. 5

% of health science students		Educational Qualification				
Level of Achievement Motivation		Ayurveda	BSc Nursing	GNM	Physiotherapy	Grand Total
Above Average Motivation	0.0%	7.5%	6.1%	4.4%		18%
Average Motivation	4.4%	16.2%	23.7%	8.3%		53%
Below Average Motivation	1.8%	4.8%	6.1%	5.3%		18%
Low Motivation	1.3%	1.3%	3.9%	0.0%		7%
Lowest motivated	3.5%	0.4%	0.9%	0.0%		5%
Grand Total	11.0%	30.3%	40.8%	18.0%		100%

Comparison of Achievement Motivation among different disciplines of health science students

Chi-Square Tests

Test Statistics Table	Gender	Age	Academic Streams	Family Type	Area Type	Internet connectivity
Pearson Chi-Square	31.99	10.45	61.68	7.25	25.84	85.48
Df	4	4	12	4	4	8
Asymptotic Significance (2-sided) / p-value	0.000	0.033	0.000	0.123	0.000	0.000

Fig. 6 Chi-Square Tests

Since p-value is less than 0.05 for age, gender, academic streams, area type and internet connectivity issue, hence we accept hypothesis 1, 2,3,5,6 at 95% confidence interval. This concludes that age, gender, academic streams, area type and internet connectivity issues are significantly associated with achievement motivation whereas p-value for family type is 0.123 which is greater than >0.05 hence we reject hypothesis 4 which means that there is no significant association between family type and achievement motivation.

In this study family type is only variable which is independent from achievement motivation which means it has no relation with the achievement motivation during on-line classes whereas other parameters like age, gender, academic stream, area type and internet connectivity issue are playing high role in achievement motivation during on-line classes.

Comparison of Achievement Motivation among Male and Female:

Figure 7 shows that 75% of female population belongs to either above average or average motivational group whereas only 59% of male belong to these two groups. However, sample is skewed towards the female population. Chi square test shows significant association between gender and achievement motivation. Hence we accept hypothesis 1 – ‘There will be significant difference in achievement-motivation levels among health science students across gender during COVID- 19 pandemic.’

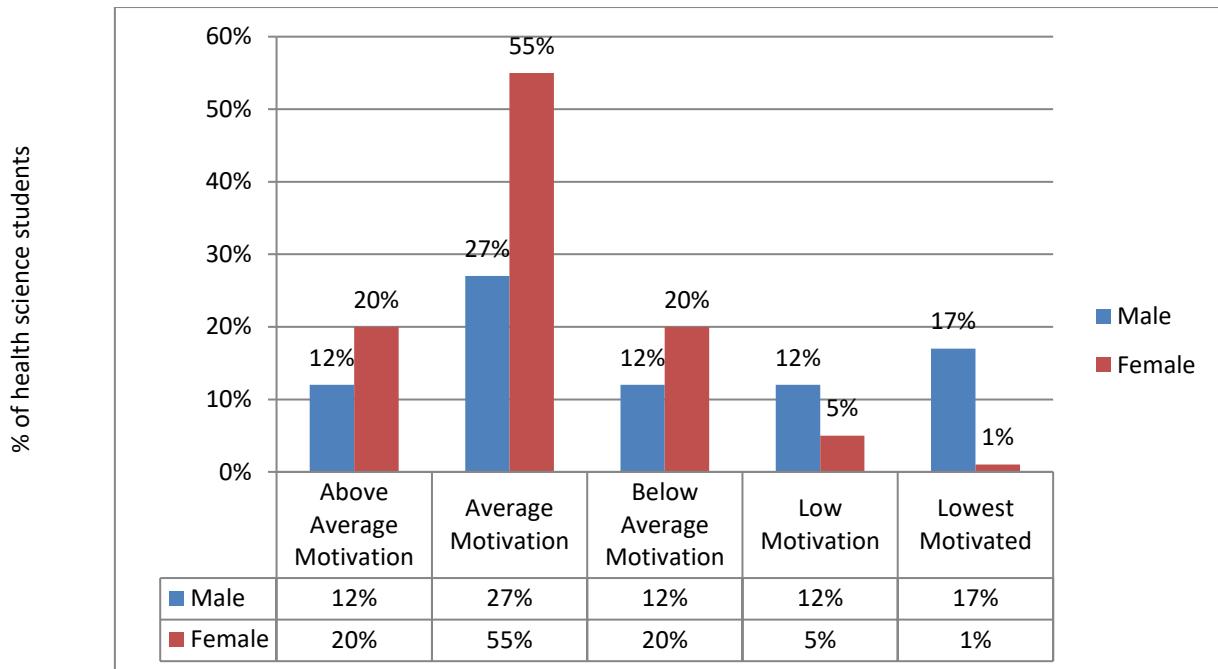
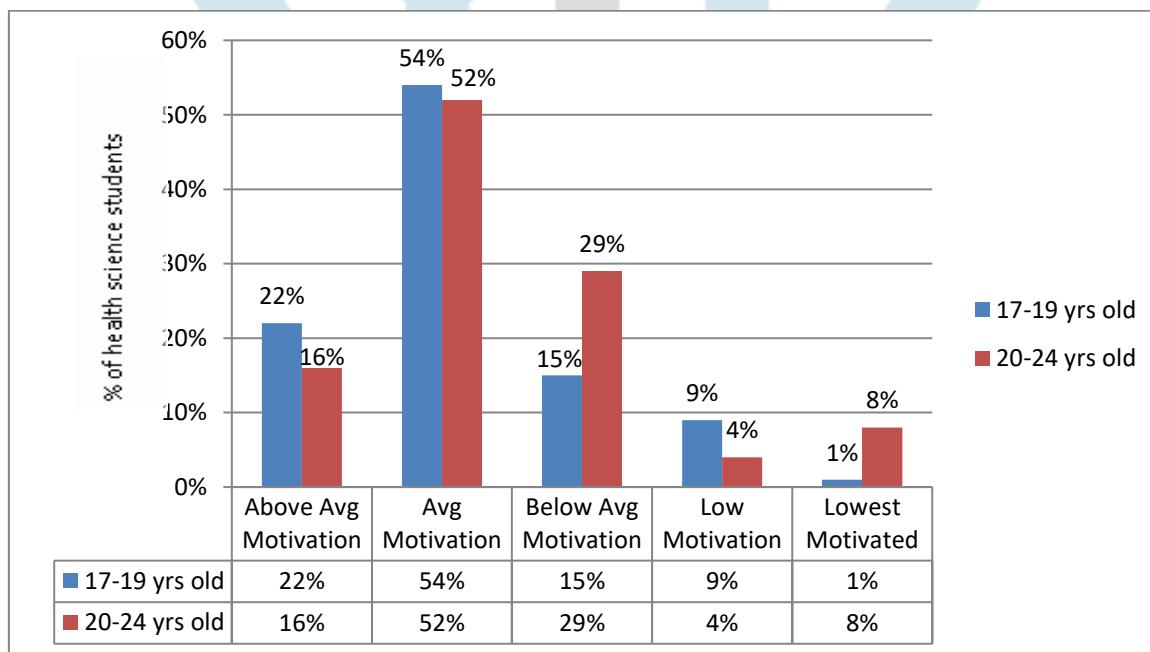
**Fig.7 Comparison of Achievement Motivation among Male and Female****Comparison of Achievement Motivation among different age groups:**

Figure 8 shows that 75% of students belonging to 17-19 age group are having above average or average motivation while 68% of students belonging to 20-24 age group are having above average or average motivation, which means majority of students from 20-24 age group are having below average level of achievement motivation than 17-19 age group students. Chi square test shows significant association between age groups and achievement motivation. Hence we accept hypothesis 2- ‘There will be significant difference in achievement-motivation levels among health science students across age group during COVID- 19 pandemic.’

**Fig.8 Comparison of Achievement Motivation among different age groups**

Comparison of Achievement Motivation among different streams: Figure 9 shows that students belonging to BSc Nursing and physiotherapy streams are comparatively more motivated whereas Ayurveda stream’s student are the least motivated. Chi square test shows significant association between different academic stream in health sciences and achievement motivation. Hence we accept hypothesis 3–‘There will be significant difference in achievement-motivation among health science students across different academic streams (health sciences) during COVID- 19 pandemic.’

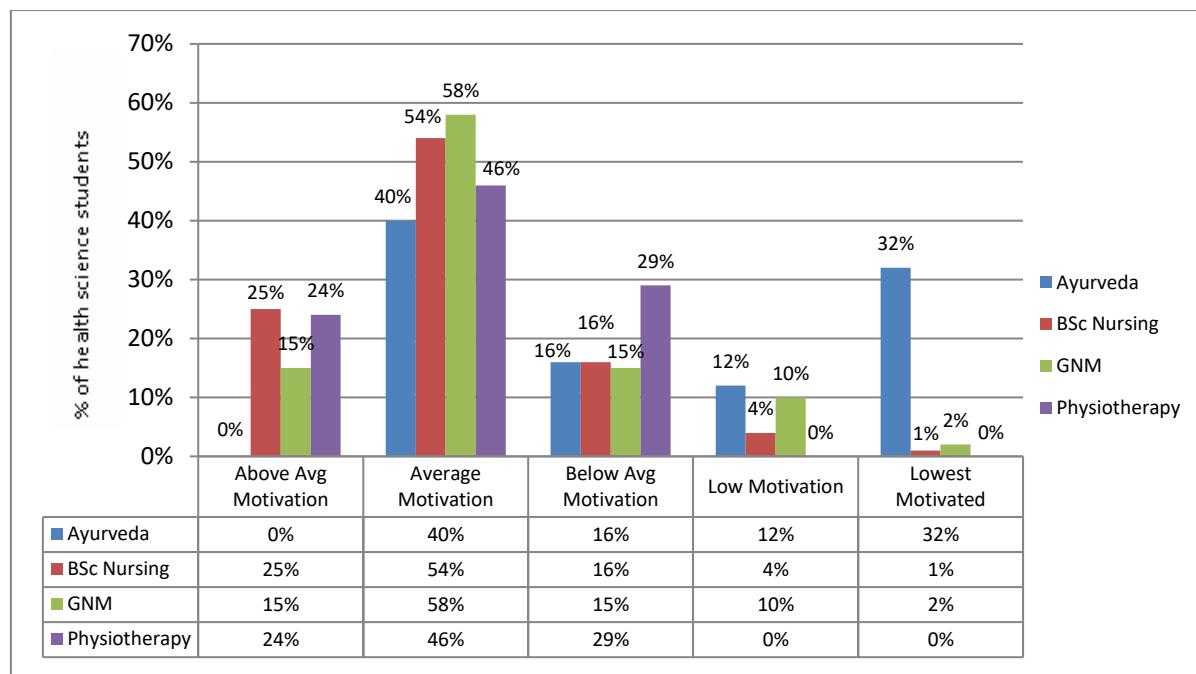


Fig. 9. Comparison of Achievement Motivation among different streams of health science students

Comparison of Achievement Motivation among students belonging to Nuclear and Joint family: Figure 10 shows average motivation shown by 48% in joint family and 55% in nuclear family whereas above average motivation is shown by 23.60% in joint family and 14.3 % in nuclear family. Chi square test shows no significant association between family type and achievement motivation. Hence we reject hypothesis 4-'There will be significant difference in achievement motivation among health science students across type of families (nuclear and joint) during COVID- 19 pandemic.'

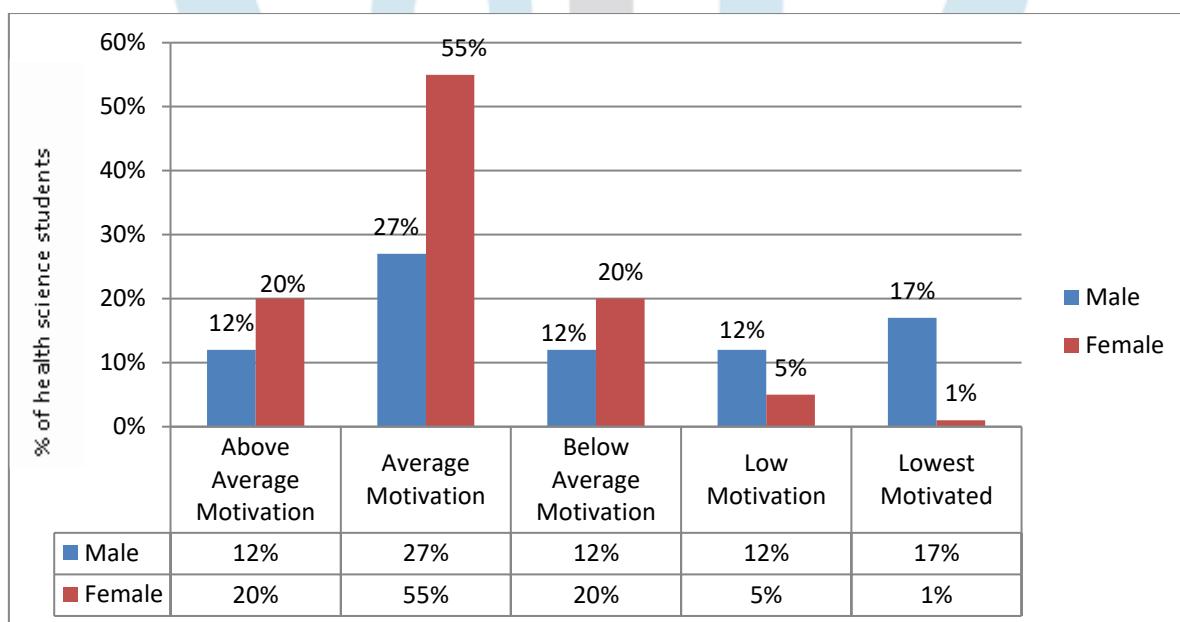


Fig 10. Comparison of Achievement Motivation among students belonging to Nuclear and Joint family

Comparison of Achievement Motivation among students having internet connectivity issues: Figure 11 shows that 37% health science students having good internet connectivity are above average or average motivated whereas 24% students are having okay (satisfactory) and 10% are having poor connectivity are above average or average motivated. Chi square test shows significant difference in achievement motivation among health science students having different internet connectivity issues. Hence accept hypothesis 5 – ‘Students with good internet connection will show higher achievement motivation than those with poor internet connectivity.’

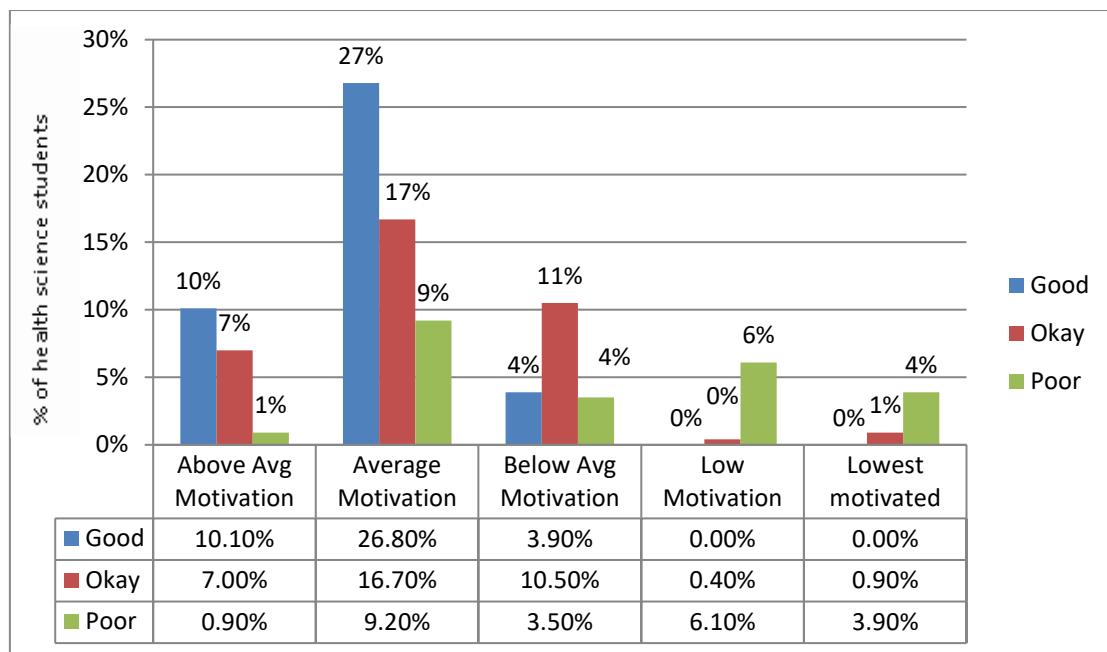


Fig 11. Achievement Motivation among students having internet connectivity issues.

Comparison of Achievement Motivation among Urban and Rural Area: Figure 12 shows the achievement motivation among students in urban and rural areas. 44% health science students belonging to urban areas are above average or average motivated whereas only 27% students belonging to rural area are above average or average motivated. Chi square test shows significant difference in achievement motivation among health science students staying in rural and urban areas. Hence we accept hypothesis 6 –‘there will be significant difference in achievement motivation among health science students staying in rural and urban areas.’

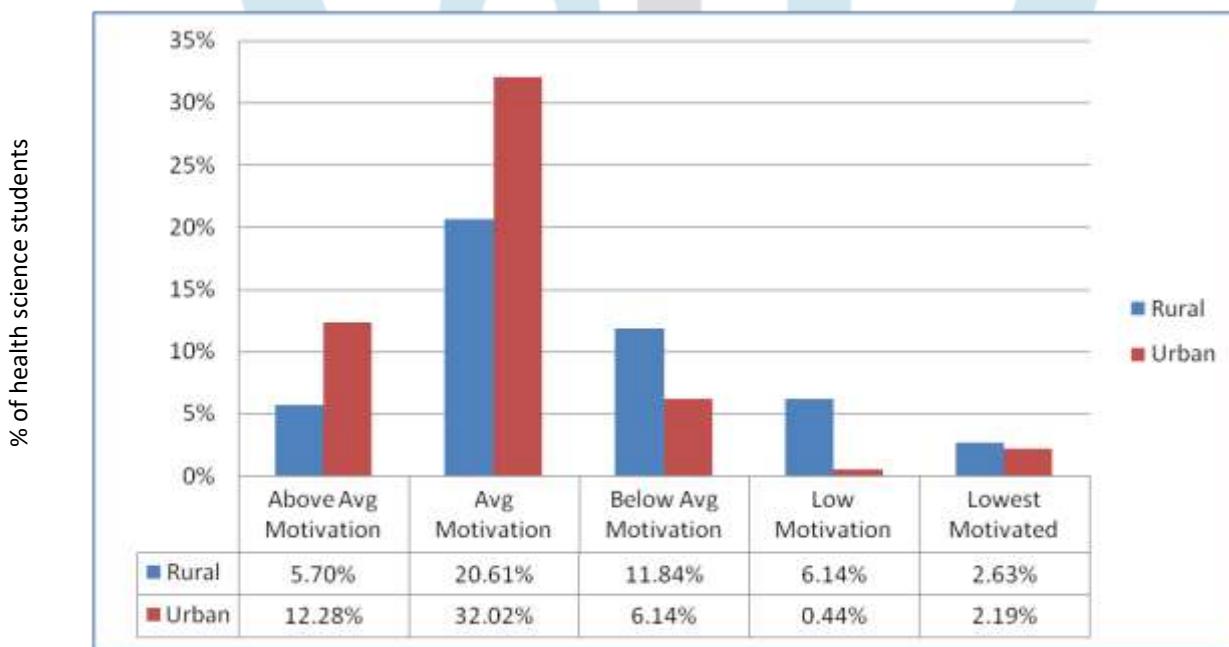


Figure 12 Achievement Motivation among students in rural and urban areas

Figure 13 shows a pivot table. It can be seen that students in rural areas are with good connectivity and hence are highly or average motivated. But students in rural areas have poor or satisfactory internet connectivity and hence lower motivation levels.

	Row Labels	Above Average Motivation	Average Motivation	Below Average Motivation	Low Motivation	lowest motivated	Grand Total
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Area belong to	RURAL	6%	21%	12%	6%	3%	47%
Internet Connectivity	good	1%	4%	0%	0%	0%	6%
	okay	4%	9%	8%	0%	0%	21%
	poor	0%	7%	4%	6%	3%	20%
Area belong to	URBAN	12%	32%	6%	0%	2%	53%
Internet Connectivity	good	9%	23%	4%	0%	0%	35%
	okay	3%	7%	3%	0%	1%	14%
	poor	0%	2%	0%	0%	1%	4%
	Grand Total	18%	53%	18%	7%	5%	100%

Fig 13: Pivot table showing relation between rural and urban areas, type of internet connectivity and achievement motivation

Discussion:

The study brings forth the average-to-low achievement-motivation levels of the health science students during the pandemic. Though BSc Nursing students showed a better achievement-motivation than physiotherapy students, followed by GNM and the least motivated were the Ayurveda stream students. Among all streams the Ayurveda students are more practical oriented than others. Patient interactions are an important aspect of their curriculum which they were missing out during pandemic. A study done in United States about on-line and face-to-face courses showed retention rates in on-line courses were lower as compared to those delivered in traditional settings and performance was also on the low side [14]. A recent study showed ‘zoom fatigue’ which is burnout along with tiredness with overuse of on-line platforms [15]. Another study reported an increase in isolation and alienation which impacted the interest and ability to concentrate on subjects by the students [16]. Some performance-based studies bring out the fact that when teaching moves on line, the biggest decline in performance is seen in those students who have the lowest grades [17,18]. Though some research findings do suggest the positive outcomes of online teaching and learning for the educators [19] and undergraduate students [20] in health sciences. They provide more flexibility and hence multiple learning styles can be incorporated by the students. They can do classes at the same time continue with their daily chores also. As teachers are uploading videos, notes and lecture recording, this can benefit students equally to learn at their own pace. Students who fear public speaking may find it comfortable to express their opinion in on-line classes. But this may not be the situation with all students, especially the ones coming from rural areas as found in this study, who are not much savvy with advanced technology and have connectivity issues.

This study specifically brings out the fact that for on-line teaching to be successful, it is not only students and teachers who are responsible but certain other factors like rural areas with poor internet connectivity would also lower their will to attend classes. Though flexibility and convenience of online classes makes it attractive option, whereas broadband connectivity issues in rural areas makes it a challenge for students to make use of online learning initiatives. As seen in this study majority of students from rural areas have poor or okay (disconnected on and off) connectivity issues and hence poor motivation levels. A survey conducted by State Council of Educational Research and Training (MSCERT), in association with UNICEF, reveals that only 57 percent of students in Maharashtra state have internet connectivity, which means that almost half the students have poor, or no access, to online education (Hindustan Times reported, July 2020). In addition, issues like no access to internet affected 52.3 percent of those surveyed, while 35.2 percent said they were victims of poor connectivity [21]. The Times of India dated August 17, 2020 also reported similar findings ‘Maharashtra: Poor connectivity in hometowns, e-classes a struggle for students’ [22].

This research also brings out the fact that girls show a higher need motivation than boys. Times are changing and girls are moving ahead in all streams. They are more aware and have their aspirations in place which helps them to achieve with their own efforts. This is brought out by many other studies [23, 24]. Though some studies have found no differences among genders [25, 26]. This study also showed no significant relation to type of family that is joint or nuclear. But students in age group 17 to 19 years are having higher motivation as these are the early college years than 20- to 24-year-old students who were already familiar with the college and teachers teaching in off-line mode. Hence, they did not show much enthusiasm towards on-line classes. All students differ in their firmness of motive to achieve. This also depends on the challenges they face and the opportunities they get to achieve. Thus, not only personal but also environmental factors need to be considered when talking about the strength of motivation in students at a particular time in a particular situation. Some environmental factors especially on-line teaching can be suitable modified for the greater achievement motivation among students.

Conclusion:

Nobody can predict the lockdowns we may face in future and hence it becomes essential for policy makers and educators and administrators to think about various factors that would help students to develop high achievement goals. The average to low motivation of students in on-line classes raises new concerns and hence new changes and advanced technology should be introduced

in betterment of the learning process. The students of health sciences are feeling the pressure of the competitive world with added anxiety about the future. Hence the study of achievement motivation among health science students become important as this is the base to professional life and service to mankind. Concrete measures can be taken to make the on-line classes more effective. "Real-world" learning should be incorporated with audio-visual aids to engage students and stimulate their thinking to make them more creative. It also becomes a necessity to ensure that problems in internet connectivity should not ever hinder education in a way that might have an irreversible impact on the students. Students with no high-speed Internet access at home are also less likely to attend on-line classes and this is especially true for rural areas which are struggling with internet connectivity issues.

Limitations:

This study is confined to a particular area only and sample size is also less. More studies can be done in rural areas where problems exist and that needs to be corrected for educational purpose.

Recommendations:

We cannot predict lockdowns but the government needs to be prepared with effective planning in rural areas where connectivity issues still persists. Steps should be taken to improve the achievement motivation level of health science students who are the backbone of the health system in India. Starting from good internet connectivity to more practical based on-line programs in teaching can be developed and implemented.

Ethical Approval: Prior approval for the study was taken from Institutional Ethical Committee of all the three colleges. Due permission was taken from concerned authorities of the institutes where study was conducted. Confidentiality was maintained by assigning a code to each participating student's document. Data was stored with security code

Sources of Funding: Nil

Conflict of Interest: Nil

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