



## A mixed longitudinal study to assess the impact of COVID-19 pandemic on level of anxiety among nursing students, their post pandemic subjective lived experiences on the impact of COVID-19 pandemic and its implication on their profession.”

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**Abstract: Introduction:** The COVID 19 epidemic has caused significant disruption in the world at various levels. Nurses, as COVID warriors, have played important roles at various levels in restoring normalcy around the world. According to the WHO 2022 research, health professionals such as nurses are at a higher risk of developing mental health issues such as anxiety. Similarly, nursing students experienced mental health issues like stresses, sadness, as well as physical health issues, during the COVID-19 pandemic. The Objective of the study were: 1) to assess the level of anxiety among nursing students during COVID 19 pandemic. 2) To assess the post pandemic lived experiences among selected nursing students on the impact of COVID-19 pandemic on their anxiety and its implication on their profession. 3) to find the correlation between level of anxiety with selected demographic variables. **Method:** The study used a mixed methodology, with an explanatory sequential method design with two time points. Phase 1 of the study used simple random sampling technique to perform a quantitative cross-sectional survey and 330 participants in nursing programme were selected. Additionally, utilizing a purposive sample technique, a qualitative study involving 15 nursing students was done during the second phase of the study at time point 2. **Result:** The majority of participants were between the ages of 18 and 20, and most come from low-income families and nuclear families. The first phase's cross-sectional survey results indicate that nursing students have a modest level of anxiousness. In response to the first research question, 52.1% of nursing students reported having a mild anxiety level, 33% reported having a moderate level of anxiety, 6.4% reported having severe anxiety, and 0.9% reported having very severe anxiety. Overall 92.4% of participants have some level of anxiety ranging from mild to very severe anxiety level. There was also notable negative correlation between program course of participants and their level of anxiety with  $p$  value=0.002. Result of qualitative analysis of selected 15 participants from within survey participants through in-depth interviews reveals main 8 themes i.e. anxiety related to online academic learning; anxiety about safety and their future; change in behavioral and psychological responses; anxious about clinical posting; social support and self-care to manage anxiety; personal growth and resilience of nursing student; change in professional attributes and future preparedness as professional. The qualitative analysis highlighted the psychological and behavioral impact among nursing students participants as a result of COVID 19 pandemic. The themes analysis shows the uses of support system and personal coping strategies employ by them to manage their anxiety. **Conclusion:** Nursing student have experience significant level of anxiety, and tried their own strategies to cope with it. Support system and individual coping system play a major role to manage anxiety.

*IndexTerms /keywords– Anxiety, nursing student, COVID 19, mixed method.*

### I. INTRODUCTION

A recent study published by the World Innovation Summit for Health (WISH) at the Qatar Foundation in Doha, The World Innovation Summit for Health (WISH) and the World Health Organization (WHO) announced on October 5, 2022, in Doha, that between 23 and 46% of healthcare and social workers experienced anxiety symptoms during the COVID-19 pandemic. The report also included a global call to action to protect the mental health of the healthcare workforce and highlighted the higher risk of negative mental health outcomes among younger healthcare workers. [1] In order to investigate perceived stress among undergraduate nursing students in Portugal and Spain during the COVID-19 pandemic outbreak, Laranjeira C et al. carried out a cross-sectional study. They also analysed a number of COVID-19-related factors and psychological problems that may be connected to perceived stress among a sample of undergraduate nursing students from both countries (n=1075). Multiple logistic regression was used to evaluate the data, with a significance level of  $p < 0.05$ . Of the individuals, 558 (51.9%) had high perceived stress levels. Most often, the family of a student who reported high levels of stress also had a COVID-19

diagnosis.[2] Resilience was identified as a critical protective factor against stress and the development of psychological morbidity. Smith GD et al. conducted a systematic review to investigate the relationship between stress and resilience in nursing students during the COVID-19 pandemic. They did this by conducting a thorough search of the literature from January 2019 to September 2022 to capture relevant publications during the COVID-19 global pandemic period. The findings indicate that nursing students worldwide experienced high levels of stress during the pandemic.[3] Curcio F. et al. assessed the feelings, amount of fear about getting the virus, and perceived stress of 709 nursing students in an observational cross-sectional study to see how the COVID-19 pandemic was viewed by them. With a mean GAD = 9.46 (SD = 5.4), 56.8% of the sample said that they frequently or always found it difficult to participate in remote learning activities. The majority of students reported mild (35%) to moderate (27%) anxiety, and 19% reported severe anxiety.[4] Garg R et al. conducted an online survey to investigate mental health disorders among health workers during the Covid-19 pandemic, utilizing anonymous questionnaires. The Patient Health Questionnaire Anxiety-Depression Scale was used to examine mental health. With a response rate of 27%, anxiety and depression were discovered in 29% of individuals, with levels ranging from mild (18.3%), moderate (4.7%), to severe (5.9%). Anxiety and depression were reported by 43.7% of women and 13.1% of men. High PHQ-ADS scores were observed in nursing professionals (70%) and postgraduate students (30%) in their third decade. The majority (81.7%) of the HCWs were afraid about spreading the sickness to their loved ones. Fear of visiting the hospital and interacting with patients.[5] The investigator observes that there are few research studies that cover both sides of the coin, i.e. cross-sectional surveys as well as subjective reactions, particularly in the post-pandemic approach to gain a thorough grasp of the issue among nursing students belonging to various programs. As a result, the current research study took a mixed approach to understanding anxiety levels during the COVID-19 pandemic and the subjective responses of the selected respondents after the active COVID pandemic.

### Objectives of the study:

1. To assess the impact of COVID-19 on level of anxiety among nursing students during COVID-19 pandemic.
2. To assess the post pandemic subjective responses among selected nursing students on the impact of COVID-19 pandemic on their anxiety and its implication on their profession.
3. To find the correlation between level of anxiety with selected demographic variables.

### Research Question:

1. What is the level of anxiety among nursing students as an impact of COVID 19 during its pandemic?
2. What are nursing students' subjective lived experiences as an impact of the COVID-19 pandemic, and its implication on their personal and professional lives in the post-pandemic period?

### Methodology:

**Research design:** Research approach employed a mixed approach, research method design was explanatory sequential method design. This approach was chosen because it was appropriate for answering the researcher's research questions, which included both quantitative and qualitative findings and their integration to acquire a more in-depth perspective.

### Population and sample:

Nursing students from various nursing programs were the population being studied. The population was enrolled at a recognized nursing institute affiliated with the Maharashtra University of Health Science in Nashik, which offered a variety of programs.

**Sample and sampling technique:** The sample size for the phase 1 quantitative cross-sectional survey during the active COVID-19 pandemic was 330, with randomization performed using a computer-generated random sequence. In Phase 1, Inclusion Criteria for study were: 1) Nursing students enrolled in the General Midwifery Nursing (GNM) diploma program, the Basic Bachelor of Science in Nursing (B.Sc.Nursing) degree program, and the Post Basic Bachelor of Science in Nursing degree program. 2) Nursing students who are 18 years or older. 3) Nursing student who is medically fit to enter a nursing program. Exclusion criteria: 1) Nursing students who have participated in similar studies.

In phase 2, following the stabilization of the COVID 19 pandemic wave and a 2-year interval, a qualitative study was undertaken by conducting in-depth interviews with 15 nursing students from phase 1 survey participants using the purposive sample technique. Inclusion criteria: 1) Nursing students who completed the phase 1 cross-sectional survey. 2) Nursing students who experience moderate to high levels of anxiety. Exclusion criteria: 1) Nursing students who have participated in similar studies.

**Method of data collection and development of tool:** The structured tool was validated using the content validity by seven experts from the subject field. Section 1 Part A of the tool has four demographic measures, while Section 1 Part B contains 20 structured items to assess the General Student Anxiety Scale. The 20-item structured questionnaires for assessing general anxiety level were examined for reliability using Cronbach's Alpha, yielding a score of  $\alpha = 0.90$ , indicating a highly reliable tool for measuring anxiety levels. There were sixteen statements and four reverse scoring items. Each item is score using 5 points Likert's scale with 0= not at all, 1= somewhat so, 2=moderately so, 3= severely so, 4= very severely/extremely. Scoring norms were: Below 10= Low, 11-30=mild anxiety, 31-50= moderate anxiety, 51 -70= severe anxiety and 71 and above= very severe anxiety. For phase 2 qualitative research, semi structured 11 guiding questions were utilized for in-depth interview in post COVID time.

**Data collection procedure:** The research investigation was approved by the institutional ethics committee. Informed consent was obtained from qualified willing participants for the study. A Google form with a proven research instrument. Section 1 Part A (4 items) and Part B (20 items) were designed to share the link with participants for undertaking an online cross-sectional survey across the various nursing programs in phase 1 of the project. The link was distributed to 330 randomly selected individuals to investigate how the COVID-19 pandemic affected nursing students' anxiety levels. It was carried out using the online Google platform with structured survey questionnaires in phase 1 of the inquiry to achieve the study's objectives, and the survey data was collected in September 2020. Online responses were collected and recorded using excel sheets, and the data was analyzed using SPSS version 22. After two years and two months of this prospective long-term study, phase 2 of the research was initiated, i.e., a qualitative study using guiding semi-structured in-depth interviews in the post-pandemic/stabilization period after active COVID pandemic period in the month of October 2022, using a purposive sampling technique to evaluate the in-depth interview responses of 15 nursing students out of 330 nursing students and to answer the researcher's second research question. The interview procedure was audio-recorded with the respondent's permission and then transcribed for coding and theme analysis.

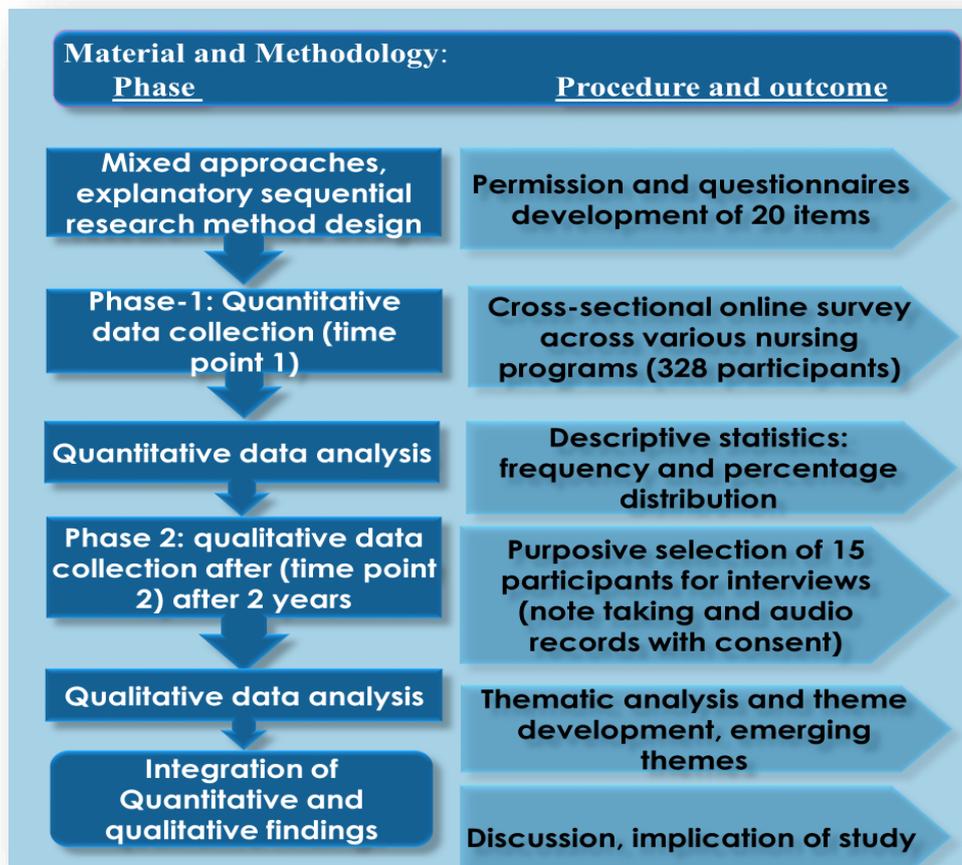


Figure 1. Showing the operational framework-flowchart of research methodology in the research process.

The figure 1, in the flow chart depict the research process employ for the present study and highlighted the phase 1 and 2, its related procedure and outcome.

**Result of the present study:** In order to fulfil the research objectives and research questions of the present study, result were organized and presented in tabulation and graphical chart as follows.

Table 1. Frequency distribution of demographic variables of nursing student's respondents

N=330

S.N.	Variables	Frequency	Percentage
1	Age in years:		
	18-20	160	48.5
	21-23	141	42.7
	24-26	21	6.4
	27 and above	8	2.4
2	Type of family:		
	Nuclear family	259	78.5
	Joint family	65	19.7
	Others	6	1.8
3	Family monthly income		
	Below Rs. 5000/-	79	23.9
	Rs.5001/- to Rs.10000/-	88	26.7
	Rs.10001/- to Rs.15000/-	78	23.6

	More than Rs.15000/-	85	25.8
4	Program Courses		
	B.B.Sc.Nursing	173	52.4
	P.B.B.Sc.Nursing	50	15.2
	GNM	107	32.4
5	Year of course program		
	First year	45	13.6
	Second year	97	29.4
	Third year	112	33.9
	Fourth	76	23.0

Table 1 displays the results of the demographic profile in the phase 1 study at time point 1. The majority of participants (48.5%) were between the ages of 18 and 20 years, with 42.7% falling between the ages of 21 and 23. The majority of the participants belong to the nuclear family (78.5%), while the remaining participants belong to joint (19.7%) and other (1.8%). The study comprised students from various years of the Basic B.Sc. Nursing (52.7%), GNM (32.4%), and Post Basic B.Sc. Nursing (14.8%) programs. Monthly financial revenue by household shows a percentage distribution in the low-income earning range. The majority of respondents (52.4%) were from the B.B.Sc. Nursing program, followed by GNM (32.4%). The majority of students are in their second or third year of their program. These profile indicate a respondent in young age with low family income.

**Table 2. Descriptive statistics describing the level of anxiety among nursing students during COVID 19**

N=330

Level of anxiety	Frequency	Percentage	Mean	St. deviation
Low (0-10)	25	7.6	2.42	0.764
Mild (11-30)	172	52.1		
Moderately (31-50)	109	33		
Severe (51-70)	21	6.4		
Very Severe (above 70)	3	0.9		
Total	330	100		

The data in table 2 reflect the level of anxiety among nursing students during COVID-19 at phase 1 time point 1 of the study. The results suggest that the majority of respondents (52.1%) have mild anxiety, followed by moderate anxiety (33%), severe anxiety (6.4%), and very severe anxiety (0.9%), with SD (0.764) and mean of 2.42. The statistics showed that a large number of nursing students had anxiety during the COVID-19 pandemic in the research study. The objective of assessing the impact of COVID-19 on the level of anxiety among nursing students during the COVID-19 pandemic was answered by the above data results, which reveal that a substantial percentage of nursing students experience anxiety at varying levels as compared to those who experience little anxiety. This finding also answers a research question that nursing students, as a impact of COVID 19, suffer anxiety at varying levels of mild, moderate, and severe during its pandemic.

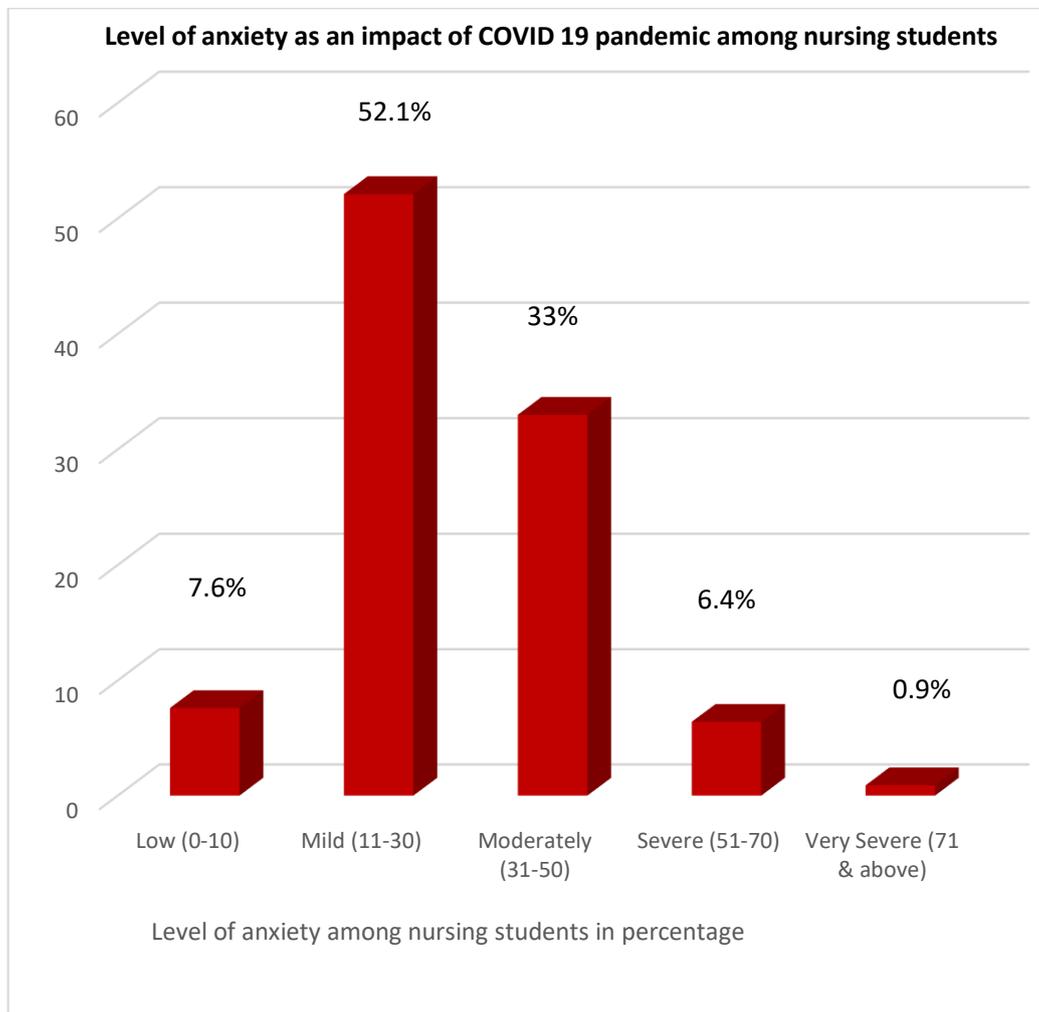


Figure 2. Showing the graphical representation of level of anxiety among nursing students during COVID 19 pandemic.

Data in Figure 2 show the level of anxiety as a result of COVID 19 among nursing students, with 7.6% having low or no anxiety, 52.1% having mild anxiety, 33% having moderate anxiety, 6.4% having severe anxiety, and approximately 0.9% having extremely severe anxiety. Overall, 92.4% of individuals experience anxiety, which ranges from mild to very severe.

Table 3. Frequency distribution and percentage of anxiety level among nursing students.

N=330									
Item No.	Not at all (%)	Somewhat so (%)	Moderately so (%)	Severely so (%)	Very severe (%)	Mean	Median	St. deviation	Decision as per weighted average
Item 1	87 (26.4)	76 (23)	91 (27.6)	47 (14.2)	29 (8.8)	1.56	2.00	1.261	High
Item 2	115 (34.8)	101 (30.6)	69 (20.9)	35 (10.6)	10 (3)	1.16	1.00	1.110	Low
Item 3	102 (30.9)	77 (23.3)	53 (16.1)	59 (17.9)	39 (11.8)	1.56	1.00	1.392	High
Item 4	188 (57)	70 (21.2)	34 (10.3)	23 (7)	15 (4.5)	0.81	0.00	1.152	Low
Item 5	102 (30.9)	111 (33.6)	54 (16.4)	40 (12.1)	23 (7)	1.31	1.00	1.223	Low
Item 6	94 (28.5)	94 (28.5)	75 (22.7)	44 (13.3)	23 (7)	1.42	1.00	1.226	High
Item 7	97 (29.4)	90 (27.3)	74 (22.4)	47 (14.2)	22 (6.7)	1.42	1.00	1.233	High
Item 8	142 (43)	94 (28.5)	54 (16.4)	23 (7)	17 (5.2)	1.03	1.00	1.157	Low
Item 9	183 (55.5)	78 (23.6)	40 (12.1)	16 (4.8)	13 (3.9)	0.78	0.00	1.086	Low
Item 10	139 (42.1)	111 (33.6)	44 (13.3)	21 (6.4)	15 (4.5)	0.98	1.00	1.105	Low

Item 11	97 (29.4)	82 (24.8)	65 (19.7)	55 (16.7)	31 (9.4)	1.52	1.00	1.319	High
Item 12	86 (26.1)	89 (27)	81 (24.5)	47 (14.2)	27 (8.2)	1.52	1.00	1.246	High
Item 13	113 (34.2)	79 (23.9)	69 (20.9)	45 (13.6)	24 (7.3)	1.36	1.00	1.276	Low
Item 14	128 (38.8)	84 (25.5)	57 (17.3)	38 (11.5)	23 (7)	1.22	1.00	1.266	Low
Item 15	78 (23.6)	87 (26.4)	85 (25.8)	40 (12.1)	40 (12.1)	1.63	1.50	1.297	High
Item 16	93 (28.2)	89 (27)	87 (26.4)	44 (13.3)	17 (5.2)	1.40	1.00	1.177	Low
Item 17	41 (12.4)	0 (0)	161 (48.8)	54 (16.4)	74 (22.4)	2.36	2.00	1.196	High
Item 18	49 (14.8)	90 (27.3)	80 (24.2)	46 (13.9)	64 (19.7)	1.96	2.00	1.341	High
Item 19	31 (9.4)	80 (24.2)	89 (27.0)	71 (21.5)	59 (17.9)	2.14	2.00	1.238	High
Item 20	141 (42.7)	0 (0)	52 (15.8)	80 (24.2)	57 (17.3)	1.16	1.00	1.157	Low

Note: Weightage average = 1.415, Decision based on weighted average of 1.415, each item mean below 1.415 consider as low level of anxiety, each item mean above 1.415 consider as high level of anxiety.

The data in table 3 show the results of phase 1 indicated the following: the majority of respondents appear to be irritated and worried, have fear for the future, find it difficult to memorize study material, become easily upset during the COVID 19 pandemic, and experience sweating and tense muscles when they think about an exam during the COVID 19 pandemic. They were also unknown what might happen during the COVID pandemic, which contributed to their concern. The majority of respondents reported feeling frightened and insecure, unable to experience joy, and powerless to change their circumstances. Respondents also reported modest levels of restlessness, insomnia, focus, and mild physiological issues such as body aches and weariness. More over half of the respondents felt compelled to talk to someone about their anxiety during the pandemic.

**Table 4. Correlations between level of anxiety and selected demographic variables among nursing students.**

N=330

Selected variables	Level of anxiety		Remarks
	Spearman rho Correlation coefficient	P-value Sig. (2 tailed)	
Age of respondents	-0.020	0.711	No correlation
Type of family	-0.046	0.401	No correlation
Family monthly income	-0.060	0.280	No correlation
Program course	<b>-0.173**</b>	<b>0.002</b>	<b>Negative high significant correlation</b>
Year of program	0.081	0.142	No correlation

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

The data in table 4 reveal that there was a significant negative correlation between program course and degree of anxiety (p-value = 0.002), demonstrating an inverse/oppositional correlation, i.e. students in various program courses have a significant relationship with their anxiety level. There was no link between anxiety level and age, family type, family income etc.

**Result of qualitative analysis:** The lived experience of nursing students during COVID-19 and its influence were investigated using descriptive qualitative analysis of individualized in-depth interview technique. All of the participants were honest and open to the 11 semi-structured open-ended questions posed to them throughout each individual interview session of 20 to 25 minutes duration. All 15 participants have given their informed consent to record their interviews for research. The results of this qualitative investigation are interpreted using descriptive qualitative methods. The strength of descriptive qualitative research is its capacity to capture the depth and richness of a phenomenon while remaining close to the data. The first step was to become comfortable with the data by reading and rereading the interview transcripts. The process of generating new themes, searching for themes, and labeling them begins with line-by-line coding of the transcripts of the participants' interviews. The original categories were constructed using 11 semi-structured interview questions; 52 initial codes were obtained, which were then combined/collated into 30 collate codes. There collate codes lead to 23 subthemes, and eventually 8 main themes emerge, as follows:

1) Themes 1- **Anxiety related to online academic learning:** The participants were anxious about their academic progress being hampered by COVID-19, with online learning being the biggest change that they find difficult, due to network troubles, a shortage of technologies, and so on during the COVID-19 pandemic. Issues with online learning include a sense of pressure, inability to pay attention in online learning, decreased involvement, worry, concern about online learning, newness of online, online learning being tough to handle, connectivity issues, and losing out. At their interviews, all 15 participants expressed concerns about online academic learning at COVID 19. Extract from the interviews: One of the Participant pointed out, "If we were in normal batch, if teacher were there in front of us, I feel, I would have done better and I use to wonder, how online will happen? All that was very stressful to me. Everything was new." Another participants express, "Main problem was the network issues. Teacher use to teach us, but sometime their voice will be cut off or interrupted or call drop or stop etc. use to happen, it was affecting my learning. I was having many doubts." And another nursing student participant said, "It was on online ..... I was not having such advanced phone at that time so that's why I was concerned about it. Sometimes the network was not there, even if the online classes were going on, electricity was not there, plus I feel that mobile was the major distraction." Among the 15 individuals, 7 admitted to feeling nervous even after the COVID epidemic, but their anxiety was controllable because they were able to cope and restore normalcy to their lives. Overall, participants described their actual experiences and anxieties about online learning as a result of the COVID-19 epidemic.

2) Theme 2- **Anxiety about safety and their future:** Participants express their concerns about their own safety and the possibility that their family will become infected with COVID 19. Students face high levels of worry and stress due to infection, loneliness during the isolation of infected family members, and treatment outcomes. They were also concerned about their future academic achievement, exams, and employment prospects. Few individuals were concerned about their learning environment at home during the lockdown. Participants discuss their uneasiness about being away from their peer group and the absence of physical presence of the teacher owing to the lockdown. Extract from the interview: One participant express, "...my family member was infected with COVID 19. That was so totally challenging. Anxiety was really high that time. I was alone....Now most of my family are not present due to COVID 19 because they suffered from COVID and they passed away. So I lost many of my family members." Another participant said, "With both parent getting infected, I was concern whether they will get treatment well or not, I was concern about their condition..." while participants talk about their exam related concern and postponement during COVID 19, saying, "During COVID 19, I was very fearful of exam. It was my first time." 'Exams related to anxiety was there. I was in my academic year, so for that I was constantly worried about what will happen next?' 'Final Exam was getting postponed again and again. For that reason I use to have anxiety.' Participants said, "All the books resources were not with me, COVID 19 was going on, all were lockdown, Plus my peer group was not there, teacher were not with us. Home environment was not conducive for study, there was no feeling to study in spite of parent encouraging me." Overall, participants exhibit fear, concern, and worry about their future prospects in academic and personal areas as a result of the COVID-19 pandemic, as they describe their lived experiences in the post-COVID-19 period.

3) Theme 3- **Change in behavioral and psychological responses:** Participants report inattention, distractibility, sleeplessness and weariness, anger, and avoidance behavior, as well as feelings of abandonment, demotivation, meaninglessness, and powerlessness. Extract from the interviews: a participant express, "Enthusiasm was not there,..., there was anxiety and fear for exam but I was unable to do anything. I was like this, doing nothing..." Another student participant said, "Distraction was too much. Frankly speaking ma'am, I avoided online lectures." Participants do experience physiological responses such as fatigue and sleeplessness, and some prefer to avoid online classes. Participants also discuss the impact of excessive mobile device use and the resulting distraction. Participants reported feeling demotivated and helpless as a result of COVID 19 during an interview on their lived experiences throughout the pandemic.

4) Theme 4- **Anxious about clinical posting as an impact of COVID 19:** All participants were concerned about missing their clinical posting during lockdown, as well as the impact or compromise on their practical skills. On the other hand, participants voice their family's opposition to nursing students being stationed in clinical postings during the COVID-19 epidemic. Extract from the interviews: A student participant said, "During lockdown, how will I get the exposure to clinic because without clinic we can't write the exams properly., I need practical knowledge to base my theory knowledge so, that's why I was concerned." Another participant said, "I feel that practically, mostly our practical skill are impacted by COVID 19....." One participant's express how she compensated, "So I have compensated in final year posting at ..... Hospital. As much as possible, I have tried to practice all my skills. I have tried to recover it all." All 15 participants revealed their lived experiences of anxiety associated to clinical posting during COVID 19 pandemic, they particularly worried about their clinical skills and its impact on their skill. Participants also make up for lost skill gaps when clinical postings were initiated during the COVID-19 epidemic later on.

5) Theme 5- **Social support and self-care as way to manage anxiety:** The participants' lived experiences suggested to the favourable impact of family support, which helped them manage their stresses successfully during the COVID-19 epidemic. As a strategy to cope with their worry, they primarily relied on family support. Along with family support, having enough time to study during lockdown, participating in online group discussions or studies, and personal self-motivation, self-realization, and practices such as meditation, yoga, journaling, and so on have all helped them manage their anxiety. Additionally, participants emphasize the necessity of timely assistance from teachers, as well as counseling facilities from institute. They believed that the counseling services given by their institute were beneficial. Extract from interview: As one participant added, "As I was in home then I got a vast time for preparing myself for exams." Another participants said, "I did meditation. I did clarifying my doubts on the phone with my friends. We used to do group studies till 3:00 am in the morning. In group discussion, we used to teach each other.....group discussion helped me a lot." Participant said, "Sharing with friend, asking teacher about doubt, and getting counseling from teacher help me a lot." While another participant express their self-motivation as self-management for their anxiety/stress, "I will cheer myself. I do that often. Even if I get down, I don't depend or wait for other, I motivate myself. I console myself that it happen, just leave it etc." All participants agreed that their family support was the main alleviating factors in time of stress during COVID 19 pandemic. Extract from the interview: a student participant said, "My family support is there and it is very important to me. Whenever I have anxiety, I talk to my father as I am close to him." And another student participant said, "I was stress out. But family supported that time that somehow reduce my anxiety, as they are near me." Overall, social support in many forms has assisted all student participants in coping with their anxiety during the COVID-19 epidemic.

6) Theme 6- **Personal growth and resilience of nursing student as an impact of COVID 19:** As a result of COVID-19, participants feel a sense of self-realization, self-responsibility, and intrinsic motivation to deal with their situation throughout the pandemic challenges. Extract from the interviews: In the interview, a participant said, "As a student, I come to understand or realize that no one is going to push you. You have to do it yourself. I understand at least these that, even if family and teacher support is there, the main thing is it mainly depend upon you, what you are doing actually. No one is going to see you what are you doing or not they are not going to see you like through CCTV camera." Another interview, a participant said, "As a student, it is your self-responsibility. Overall in pandemic, I understood that only you have to do it. Only you have to do it and work on it and clear the exam." While another participant realizes that, "During Pandemic, whatever I have learn is that, self-motivation is very important." A pattern of coping evolves in the form of personal growth and resilience features, which assist the participant's in motivating themselves and becoming more robust in the face of their difficult condition during the COVID-19 pandemic. They identify the significance of self-dependency and self-responsibility as sources for reducing their conditions, such as anxiety, study, and so on, rather than relying on outside agencies for assistance, despite the fact that participants recognized the benefit of faculty counseling for their anxiety management.

7) Theme 7-**Change in Professional attributes as an impact of COVID 19 in knowledge, attitude and practice on nursing profession:** All the 15 participants experience a change in their aseptic and infection control knowledge, Extract from the interview: a participant said, "Knowledge has increase, regarding infection control and it has change for better." All 15 students shared their experiences of increasing knowledge about infection control and prevention while delivering patient care and personal care.

The attitude of nursing students toward nursing profession also shifted toward more positive than before. Extract from the interview: A participant said, "When I enter nursing, there was no feeling of coming in this profession but during COVID 19 time, I show nurses were frontline worker, their work responsibilities during COVID were more, it was very inspiring that, yes! There is something worthwhile! We can do many thing, that we have many scope." Another participant express, "Initially I use to feel the nursing value in society was less, but due to COVID 19, nursing value has increase. Then I feel that I have chosen the right career." While another participant felt that she have more scope now, "Now I am happy. That I can do many thing in this career too. I have already decided my plan for future, my pathway is clear." The students' participants' experience the phenomenon of being valued with a sense of pride, and worthiness as a nursing students as they discover the global contribution of nurses during COVID 19 pandemic, shifting their attitude toward more positive and having caring mind-set, willing to contribute more nursing services toward the society at large.

The professional practice as well personal practice toward handling patient and about self, have also change as per lived experiences of the nursing students. Extract from the interview: A participant said, "I've learned to adapt hygienic practices now in clinic, I am more health conscious and cautious!" In another interview, a participant expresses the good impact of changing practice, "I am using more aseptic technique like hand hygiene more than before, and I think such practice is good for us. I think it is positive approach." Participant also point out the pre era and post era differences about COVID 19 impact in clinical practice in interview-, "There are changes in infection prevention practice aspect. Before hand, I did not give that must focus on this infection prevention technique but due to CORONA virus I started to focus more on this practice. Like hand washing, picking up linen and doing things more consciously, using mask, PPE kit etc." Overall, as an impact of the COVID-19 pandemic, nursing students' lived experiences demonstrate changes in knowledge growth, a more positive attitude toward nursing as a valued and honourable career, and increased adoption of more aseptic procedures and infection control practices in clinical settings.

8) Theme 8-**Future preparedness as nursing professional:** The nursing student participants were willing to continue their nursing careers despite the difficult circumstances they witnessed, heard, and experienced as nursing students during the COVID-19 pandemic. Extract from the interviews: When asked whether they will continue to provide services as nurses in hospital or community if any pandemic occur in future with high infection rate or are they willing to leave the profession? 'Participants replied in the interview using the statements such as, "I will continue with my professional service.", "I am not going to leave my profession at any cost!" "I have to provide care to the patient, as it is my responsibility that I have to reduce cases!" while other said, "choosing this profession was a great decision!" Another participant said, "I will not leave my profession. I will face it, I will look after myself and other. Whatever that need to be done, I do it.' Many responses were like, "I have that confidence that I'll tackle all those problems that will come to me and in any pandemic." "As I am becoming a nurse, I should be prepared for the pandemic that I need to provide care." "I will give 100%, as I know now what is, what is not, what to be done etc." The extract of interview statements indicated the overall willingness of nursing student's participants to continue their professional practice and optimism toward their future preparedness as nursing professional.

### Discussion and implication of the study:

The current study objective sought to analyze the impact of COVID-19 on the level of anxiety among nursing students during the pandemic. The objectives were obtained through the results analysis, which showed an overall anxiety level of 92.4% ranging from mild to severe, as opposed to a low anxiety level of 7.6% among 330 nursing students. Furthermore, the first study question was answered, indicating that nursing students feel considerable levels of anxiety ranging from mild to very severe, with the majority experiencing mild (52.1%) and moderate (33%) anxiety as a result of the COVID 19 pandemic.

The results of phase 1 indicated that the majority of respondents appear to be irritated and worried, have fear for the future, find it difficult to memorize study material, become easily upset during the COVID 19 pandemic, and experience sweating and tense muscles when they think about the exam. They were also concern about what might happen during the COVID pandemic, which contributed to their anxiety. The majority of respondents reported feeling frightened and insecure, unable to experience joy, and powerless to change their circumstances. Respondents also reported modest levels of restlessness, insomnia, focus, and mild physiological issues such as body aches and tiredness. More over half of the respondents felt compelled to talk to someone about their anxiety during the pandemic.

The data in table 4 met the research objective of determining the correlation between anxiety level and selected background variables. The results show that there is a significant negative correlation between program course and level of anxiety with p-value = 0.002, indicating an inverse/oppositional correlation, i.e. students in different program courses have a significant

relationship with their level of anxiety. There was no association between anxiety level and the remaining variables, such as age, family type, and family income etc.

The findings indicate that nursing students experience anxiety and that further investigation into their psychological problems is required. Nursing students are future nurses who will play an important role in the health industry from primary to tertiary levels. They will benefit from measures and facilities to promote good mental health practice in nursing educational institutes, as well as the establishment of a supportive system in the health industry.

The second research objective was attained through a qualitative descriptive analysis of 15 participants' in-depth interviews at phase 2 time point 2. So the in-depth interview conducted in phase 2 with 15 participants' lived experiences supports the phase 1 result that they had a high level of anxiety. The qualitative analysis provides additional insight into the various reasons for their anxiety during the COVID 19 pandemic. Notable findings from their lived experience include their struggle to adapt to online academic learning, concerns about future prospects, and so on. As current trends shift toward a more hybrid type of academic learning, combining offline and online components, the balance between these training approaches must be carefully considered.

The 8 main themes that emerges as qualitative descriptive analysis result were: **1) anxiety related to online academic learning; 2) anxiety about safety and their future; 3) change in behavioral and psychological responses; 4) anxious about clinical posting; 5) social support and self-care to manage anxiety; 6) personal growth and resilience of nursing student; 7) change in professional attributes and 8) future preparedness as professional.** The descriptive qualitative analysis reveals that nursing students suffer significant anxiety for a variety of reasons, which validates the quantitative data results provided in table no. 2 and figure no. 2. The main reason was their perceived or real obstacles in adapting to online academic learning during pandemic lockdown, which were mostly related to a lack of facilities such as a network, electric supply, and a non-conducive learning environment, as well as the repetitious nature of staring at the mobile screen. Another major source of stress and worry was the dread of becoming infected with the CORONA virus, as well as concerns about family safety.

They describe their own experiences with anxiety over their future and job, as well as their exam performance. All 15 subjects reported severe test anxiety, regardless of class or grade level. The participant's subjective replies describe their experiences using phrases such as distraction, tiredness, sleeplessness, irritation, and concern, which shed light on their psychological and behavioral changes throughout the COVID 19 pandemic and corroborate the outcome analysis shown in table 3. Another major source of their anxiety was their missed clinical posting during lockdown, which was accompanied by opposing views between students and their parents, with students willing to go for clinical posting during the pandemic versus parents unwilling to send their children for the stated reason that they were still students only, according to the participants. In terms of anxiety management, a common trend emerges, namely that the nursing student's family and peer support system played a significant role in managing their worry during the epidemic. They used to chat to their parents, who would motivate them, and they would converse and discuss personal and academic issues with others online. This support structure helped them deal and control their anxieties. In addition, some participants manage their anxiety through meditation, yoga, journaling, and other activities. Another good aspect emerged as an impact of the COVID-19 pandemic, with personal growth and resilience attributes emerging as a key themes. Participants characterize this phenomenon using terms like self-motivation, self-responsibility, and self-realization. Participants' lived experiences demonstrate the necessity and value of self-motivation, recognizing the need to improve their academic performance, self-study, and become more resilient in the face of adversity, such as when family members become ill with the corona virus. They become more resilient as they deal with difficult situations during the pandemic. The latter two main themes were related to impact on their professional lives as students. The COVID 19 pandemic has had a favourable impact on nursing students' knowledge of infection control, positive attitudes toward their career, and perceptions of it as a worthwhile and valuable job. They stated that their clinical practice regarding the usage of PPE kits, hand hygiene, and handling equipment has become more frequent and cautious. They thought that they were willing and well equipped to face a pandemic in the future, which appears as the final main theme, professional readiness. All 15 said they would continue to work as professional nurses even in catastrophic circumstances, citing their ethical and moral responsibilities to the public as health care providers.

The commitment of nurse professionals around the world during the COVID-19 pandemic, as well as the identification of nurses' roles in the pandemic as COVID warriors by the general public, may have contributed to beneficial changes in nursing student professional qualities. As a result, the second research question was answered, as previously mentioned.

**Conclusion and recommendation:** As current trends show more demands in health professional like nursing work force in this ever growing health industry, it become essential to prepare potential nurse's aspirant and trainees i.e. nursing student to face future pandemic. Seeing the current trends, COVID 19 has bought about, many changes in training health professional, shifting curriculum implementation from real context to virtual world, hybrid form etc. in medical, nursing colleges. The researcher observed that there is a need for psychological preparedness among students of health professional like nursing student, medical student to manage negative impact of future health crisis in pandemic level. On other hand, there is a positive sign of resilience among the study participants. Researcher also observed that there is pressing need to address nursing student psychosocial issue and mental health issue and recommended to have measures and provision of designated trained faculty counselor, easily accessible by nursing students during their training to provide counseling and mental health programs within institute as a mandatory facilities instead of namesake processes.

While favourable professional changes are welcome, nursing students experienced major mental health issues during the active COVID 19 pandemic, resulting in varying levels of anxiety among nursing student participants, as evidenced by the results of the research analysis.

Ito Y et al. conducted a similar study in Japan among nursing students, highlighting the risk of anxiety and depression among students who have COVID 19 affected close relatives and financial issues, and found that the common factor that increased the risk of anxiety was life satisfaction and fear of COVID 19.[6] The qualitative descriptive analysis also reveals similar trends and validates the previous research result that nursing students who have been infected or whose family members have been infected have a high level of anxiety, with their main concern about the illness being the outcome of treatment. In qualitative descriptive analysis, the findings suggest that nursing students, as research participants in an individualized in-depth interview, express their lived experience of worry and fear about their future during COVID-19. The lockdown, illness of their family members, and their

own infection exacerbate their psychological problems. Their biggest concerns were on their academic progress, exam performance, clinical placement, and so on. Online learning was new to them, and it came with its own set of drawbacks, such as network troubles, power outages, excessive mobile use, etc. Social issues such as a lack of friends and teachers contributed to their uneasiness. Personally, the participants feel lonely, abandoned, demotivated, and helpless. Their close family support and understanding, institutional resources for teacher counseling, and their own personal self-motivation and self-realization all helped them cope with their anxieties. Participants also reported changes in their professional attributes, such as increased knowledge of infection protocol and prevention, a more positive attitude toward their own profession, and increased use of protective equipment such as masking, gloving, and hand hygiene in the clinic and in their personal lives. The qualitative descriptive analysis shows that they have good growth and resilience qualities, as well as a sense of future preparedness to confront any health issue that may arise.

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### Conflict of interest

The authors declare no commercial or financial relationships that could be construed as a potential conflict of interest during the conduct of this research.

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