







ORIGINAL ARTICLE

COVID-19: Knowledge, anxiety, academic concerns and preventative behaviours among Australian and Indian undergraduate nursing students: A cross-sectional study

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Abstract

Aims and Objectives: To compare knowledge, anxiety, academic concerns and preventative behaviours between undergraduate nursing students in Australia and India during the COVID-19 pandemic.

Background: Based on the World Health Organization's direction for containment of the novel coronavirus (COVID-19), countries implemented varying levels of restrictions including closure of university campuses and providing on line undergraduate education.

Methods: Students in NSW, Australia and Kerala, India completed an online survey assessing their (a) knowledge and source of information about COVID-19; (b) anxiety; and coping strategies; (c) academic concerns; and (d) preventative behaviours. Descriptive and inferential statistics were used to summarise the data.

Results: Data from 99 Australian and 113 Indian undergraduate nurses were analysed. Greater number of Indian students indicated having sufficient knowledge of COVID-19 (OR 0.22; 95% CI 0.08, 0.63), getting information about COVID-19 from social media (OR 0.03; 95% CI 0.01, 0.07) and being concerned about 'attending clinical placement' (MD -1.08; 95% CI -1.94, -0.23). Australian students reported significantly higher levels of anxiety (MD 1.99 95% CI 1.21, 2.78), difficulty sleeping (OR 18.00; 95% CI 6.76, 47.96), concentrating (OR 33.22; 95% CI 13.85, 79.67) and eating (OR 14.05; 95% CI 3.19, 61.84). Greater number of Australian students indicated that they would go to the University if they needed to meet with other students (OR 9.21; 95% CI 3.08, 27.55), had to access the library (OR 7.20; 95% CI 3.26, 15.90) or had a group assignment (OR 2.93; 95% CI 1.26, 6.77).

Conclusions: Wide variations were present in knowledge, anxiety, academic concerns and preventative behaviours among undergraduate nursing students in two countries.

Relevance to clinical practice: Undergraduate students may benefit from additional support from the University and staff in the clinical setting with online learning and resources in order to adjust to the 'new normal' and enable them to achieve academic success.

KEYWORDS

academic concerns, anxiety, clinical placement, COVID-19, nursing education, pandemic, student nurses

1 | INTRODUCTION

The occurrence of respiratory viruses in pandemics and epidemics has been regular over the last 300 years (Balicer et al., 2006). A Public Health Emergency of International Concern (PHEIC) was declared by the World Health Organization (WHO) on 30 January 2020 (Eurosurveillance Editorial Team, 2020) due to the novel coronavirus (COVID-19) and was further declared a pandemic on 11 March 2020. Based on the WHO's direction for containment (World Health Organization, 2020), countries implemented varying levels of restrictions to stop the spread of the virus. In Australia, international borders were closed to all non-residents, state and territory borders were also closed severely restricting national travel, social venues and restaurants were closed, large gatherings were prohibited, people were asked to work from home where possible and social distancing rules were imposed (Australian Government, 2020a). Initially warnings were given, followed by monetary fines for offenders. This was coupled with a public health campaign around hand washing, social distancing and getting tested. In contrast, the Government of India ordered a nationwide lockdown, limiting the movement of the entire 1.3 billion population (Gettleman & Schultz, 2020). People were instructed to stay at home and those going out had to carry signed forms declaring reasons for travel (Government of India, 2020a). All offices, businesses and public transport were shut and both social distancing and wearing masks in public became mandatory. Violation of public health rules brought fines or imprisonment.

2 | BACKGROUND

Despite the disruptions to the community in general, and tertiary education, there is an imperative for nursing education to continue. During a pandemic it is vital that nurses and other health professionals continue to complete their qualifications to meet the high workforce needs both in the short and medium term. Across the globe, university campuses were closed to reduce COVID-19 transmission. This has prompted a rapid transformation in the delivery of undergraduate nursing education (Cao et al., 2020). Traditional face-to-face teaching was replaced with online teaching, thus creating an

What does this paper contribute to the wider global clinical community?

- Globally, the delivery of nursing education changed rapidly during the COVID-19 pandemic, increasing anxiety among students.
- Culture plays an important role in how undergraduate nursing students experience and cope with the 'new normal' during the COVID-19 pandemic.
- Additional support from the academics and the University with online learning and resources may assist undergraduate nursing students to adjust to the 'new normal' and enable them to achieve academic success.

altered study environment for many students (Carolan et al., 2020). While in some countries, such as the United States and Australia, some theoretical components of the nursing curriculum have been increasingly delivered online (Barakat et al., 2016; Ota et al., 2018), in other countries, such as India, nursing education remains largely delivered in the face-to-face method (Cabanda, 2017). Given the variations in experience with online delivery within their programmes, the transition to remote delivery entirely may have a variable impact on nursing students internationally. In addition to the theoretical components, undergraduate nurses must complete clinical placements to satisfy regulatory requirements for qualification as a nurse. Previous studies during an epidemic have reported that nursing students are fearful of increased risks in the clinical environment (Dewart et al., 2020; Wong et al., 2004). The combination of changed delivery of theoretical components and increased risk in clinical placements creates significant additional pressures on nursing students.

Nursing students have previously been found to experience greater anxiety from their education than other health professional students (Savitsky et al., 2020). This is likely to be compounded by the additional stressors related to social and academic adjustments due to COVID-19 within the community (Lewnard & Lo, 2020) and its impact on the delivery of nursing education (Hayter & Jackson, 2020). Anxiety negatively impacts quality of life, educational performance and clinical practice (Sanad, 2019).

To date, studies exploring anxiety and knowledge in nursing students have been predominately conducted in a single setting (Pan, 2020; Savitsky et al., 2020; Tang et al., 2020; de Tantillo & Christopher, 2020). While this provides important insight into that setting, international comparisons would allow for an exploration of possible variations among student experiences in different contexts and settings, which could inform strategies to optimise nursing education during a pandemic. Therefore, the aim of this study was to compare adjustment to the 'new normal' due to COVID-19 in terms of knowledge, anxiety, academic concerns and preventative behaviours between undergraduate nursing students in Australia and India. Data from this paper are drawn from a larger study titled 'COVID-19 pandemic R U OK: Assessing the wellbeing of pre-registration nursing students' (Authors Own).

3 | METHODS

3.1 | Design and setting

A cross-sectional study was conducted using an on line survey in two universities providing undergraduate nursing education in NSW, Australia and in Kerala, India during the COVID-19 lock down period. Ethical approval was obtained from the Human Research Ethics Committees of the two Universities (Approval numbers 2020/156; and IEC/8B/1/2020). This study is reported according to the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies (Appendix S1).

3.2 | Data collection

3.2.1 | Participants

All students studying nursing at the participating Universities in NSW, Australia and Kerala India and were eligible to complete the questionnaire. For this sub-study, data for the Australian cohort were obtained from the larger study comprising of 234 domestic and international students.

3.2.2 | Survey

A structured survey was used to assess (a) student demographics, including age, gender, year of study, living and employment status (employment status only for the Australian cohort as Indian nursing students do not work while studying); (b) knowledge and source of information about COVID-19; (c) anxiety and coping strategies; (d) concerns about the altered study environment; and (e) preventative behaviours. Knowledge (4 items), source of information about COVID-19 (2 items), coping strategies (4 items)

and preventative behaviours (9 items) were assessed using investigator developed questions. Students had to rate each item on a scale of strongly agree to strongly disagree. Anxiety was assessed using the Six-Item State-Trait Anxiety Inventory (STAI) (Marteanu & Bekker, 1992) and five investigator developed questions. The reliability coefficient for the six-item STAI has been reported to be 0.82 (Marteanu & Bekker, 1992). Concerns about the altered study environment was investigated using the 11-item Altered Student Study Environment Tool (ASSET). The ASSET comprises of three subscales, namely attending clinical placement (3 items); completion of clinical placement (4 items) and Grade attainment (4 items). The internal consistency for the total ASSET has been reported to be $\alpha = 0.830$ and for the three subscales Attending clinical placement, Grade attainment and Completion of clinical placement as 0.920, 0.712 and 0.771, respectively (Fernandez et al., 2020).

3.2.3 | Data collection technique

Data for both cohorts were collected using an online survey. Australian students received an invitation to participate and a link to the questionnaire created in Survey Monkey™ (SurveyMonkey Inc., 2020) through the University digital learning platform and student social media platforms (e.g. Student Facebook page). Indian students were invited to participate in the survey through the student messaging group on 'WhatsApp', a cross-platform messaging and voice service that was set up by the institution. In addition, the participant information sheet and survey were sent to the students' registered email address. Students were informed that no identifiable information would be obtained, all responses were confidential, and that participation was voluntary. Completion of the survey was considered as implied consent.

In both countries, data collection was undertaken during the peak of the initial pandemic. At the time of the data collection there were approximately 7113 confirmed cases of COVID-19 in Australia (Australian Government, 2020b) and approximately 118226 confirmed cases of COVID-19 India (Worldometer, 2020). The researchers had no formal relationship with the students, holding only supportive professional links.

3.3 | Data analysis

All data were exported to SPSS version 25 (IBM Corp, 2016) for analysis. Relevant items were reverse coded according to author guidelines before analysing to ensure that higher scores reflected greater anxiety and higher concerns. The Indian cohort comprised of only domestic students aged between 18–23 years; therefore, only students aged between 18–23 years and of domestic status were selected from the Australian cohort of 234 participants. This process ensured comparability of both cohort on these factors. Using a 95% confidence level with a 6% margin of error, the

total sample size requirement for this sub-study survey was 236 students.

Data were summarised using descriptive analyses, including means, standard deviations and frequency distributions. The normality of continuous data was ascertained by examining the skewness and kurtosis indices against accepted values. Given that the skewness and kurtosis indices were normal or close to normal, *t*-tests, mean difference (MD), odds ratios (OR) and their 95% confidence intervals (CI) were used to compare the variables between the two countries. Separate univariate analyses were conducted for Australian and Indian students to estimate the effect of demographic variables on total anxiety and the subscale 'attending clinical placement'. The beta (β) values and the 95% confidence intervals were calculated in the multiple regression analyses if the ANOVA model was significant. Statistical significance was set at $p < .05$.

TABLE 1 Demographics

	Australia (<i>n</i> = 99)	India (<i>n</i> = 113)
	Mean (SD)	Mean (SD)
Age	20.0 (1.60)	20.2 (1.35)
	<i>N</i> (%)	<i>N</i> (%)
Gender		
Female	81 (81)	110 (97)
Male	10 (10)	3 (2)
Year of study		
1st	36 (36)	40 (35)
2nd	35 (35)	4 (3)
3rd	27 (27)	44 (38)
4th	—	24 (21)
Living with family	81 (82.7)	113 (100)
Employment status		
Employed	75(77.3)	—
Not employed	22(22.7)	—

TABLE 2 Knowledge about COVID-19

	Australia	India		
	Strongly agree/agree (%)	Strongly agree/agree (%)	<i>p</i> value	OR [95% CI]
Knowledge about COVID-19				
At present, I have sufficient knowledge of COVID-19	82 (82.9%)	108 (95.6%)	.005	0.22 [0.08, 0.63]
I understand how to protect myself during the COVID-19 pandemic	97 (98%)	113 (100%)	.26	0.17 [0.01, 3.62]
Regular hand washing can prevent the spread of COVID-19	94 (95.9%)	113 (100%)	.08	0.08 [0.00, 1.39]
Social distancing is important to help prevent the spread of COVID-19	96 (97%)	113 (100%)	.16	0.12 [0.01, 2.38]

4 | RESULTS

4.1 | Respondents & demographics

Two hundred and thirty-four Australian undergraduate nurses and 113 Indian undergraduate nurses completed the survey indicating a 20% and 56% response rate, respectively. Following selection of students based on age (between 18–23 years) and students' study status (domestic students only), data for 99 Australian and 113 Indian undergraduate nurses were included in this analysis. The mean age of the participants was 20.1 years (SD 1.47). The majority of students ($n = 191$; 90%) were female. While all Indian students lived with their families, only 82.7% of the Australian students lived with their families. The majority of the students in the Australian cohort were in the first year of their study (36%) while the majority of the students in the Indian cohort were in the third year of their study (34%). The majority (77.3%) of the Australian students had some form of employment (Table 1).

4.2 | Knowledge of COVID-19

Significantly more Indian students (95.6%) agreed/strongly agreed that they had sufficient knowledge of COVID-19 compared to the Australian cohort (82.9%) (OR 0.22; 95% CI 0.08, 0.63; $p = .005$). There were no significant differences in this self-reported knowledge relating to protecting themselves, handwashing and social distancing between the two cohorts (Table 2).

4.3 | Information source

Nearly three quarters of participants (Australia: 71.7%; India: 69.9%; $p = .77$) indicated that the university had provided them with sufficient information about COVID-19. Significantly more Indian students ($n = 108$, 95.5%) got their information about COVID-19 from social media than the Australian students ($n = 37$, 37.4%) (OR 0.03; 95% CI 0.01, 0.07).

TABLE 3 Anxiety and coping strategies due to COVID-19

Anxiety				
	Australia	India		
	Mean (SD)	Mean (SD)	<i>p</i> value	MD [95% CI]
Total anxiety (STAI)	16.2 (2.7)	14.2 (3.0)	.000	1.99 [1.21, 2.78]
	Australia	India	<i>p</i> value	OR [95% CI]
	Strongly agree/agree (%)	Strongly agree/agree (%)		
I am anxious about my own health	44 (44.4%)	54 (47.7%)	.63	0.87 [0.51, 1.50]
I am anxious about the health of my loved ones	80 (80.8%)	103 (91.1%)	.03	0.41 [0.18, 0.93]
I have difficulty sleeping	45 (46.4%)	5 (4.4%)	<.00001	18.00 [6.76, 47.96]
I have difficulty concentrating	68 (68.7%)	7 (6.2%)	<.00001	33.22 [13.85, 79.67]
I have difficulty eating	20 (20.4%)	2 (1.8%)	.0005	14.05 [3.19, 61.84]
Coping strategies				
I have limited my time watching, reading or listening to news stories, including social media	31 (31.3%)	18 (16%)	.009	2.41 [1.24, 4.65]
I have increased my participation in exercise	34 (34.7%)	91 (80.5%)	<.00001	0.13 [0.07, 0.24]
I do activities that I enjoy	44 (44.9%)	73 (64.6%)	.003	0.44 [0.25, 0.76]
I talk with people I trust about my concerns and how I feel	62 (62.6%)	107 (94.7%)	<.00001	0.09 [0.04, 0.24]

4.4 | Anxiety

The mean anxiety score for the Australian cohort (mean 16.2 ± 2.7) was significantly higher than the Indian cohort (14.21 ± 3.0) (MD 1.99; 95% CI 1.21, 2.78). Significantly more Australian students reported having difficulty sleeping (OR 18.00; 95% CI 6.76, 47.96), concentrating (OR 33.22; 95% CI 13.85, 79.67) and eating (OR 14.05; 95% CI 3.19, 61.84) than Indian students. However, a greater number of Indian students reported having anxiety about the health of their loved ones than Australian students (OR 0.41; 95% CI 0.18, 0.93). There was no statistically significant difference between the groups in terms of anxiety about their own health (OR 0.87; 95% CI 0.51, 1.50) (Table 2).

Results of the univariate analysis undertaken for the Australian cohort demonstrated no statistically significant differences in total anxiety scores and age ($r = .31$ $p = .770$), year of study ($F = 0.489$; $p = .615$), living status ($t = 1.01$; 95% CI -0.71, 2.20) and employment status ($t = -0.282$; 95% CI -1.52, 1.14). Similarly, results of the univariate analysis undertaken for the Indian cohort demonstrated no statistically significant differences in total anxiety scores and age ($r = .003$ $p = .977$), year of study ($F = 0.118$; $p = .949$). Living and employment status were not included in the univariate analysis as all Indian students were living with their families and none were working.

4.5 | Coping strategies

Significantly more Australian students limited their time watching, reading or listening to news stories, including social media compared

to the Indian cohort (OR 2.41; 95% CI 1.24, 4.65). In contrast, a significantly higher number of Indian students increased their participation in exercise (OR 0.13; 95% CI 0.07, 0.24), did activities that they enjoyed (OR 0.44; 95% CI 0.25, 0.76) and talked with people they trust about their concerns and how they felt (OR 0.09; 95% CI 0.04, 0.24) compared to the Australian cohort (Table 2).

4.6 | Concerns about the altered study environment

There were no statistically significant differences in the mean total ASSET score between the Australian cohort (28.2 ± 7.3) and the Indian cohort (30.1 ± 8.0) (MD -1.83; 95%CI -3.94, 0.27). Similarly, there were no statistically significant differences between the two cohorts for the ASSET subscales 'completion of clinical placement' (MD -0.20; 95%CI -1.16, 0.76) and 'grade attainment' (MD -0.53; 95%CI -1.37, 0.30). However, there were significantly higher concerns among the Indian cohort for the subscale 'attending clinical placement' (MD -1.08; 95%CI -1.94, -0.23) (Table 3).

Univariate analysis undertaken for the Australian cohort demonstrated no statistically significant differences in scores for 'attending clinical placement' and age ($r = .175$ $p = .098$), year of study ($F = .066$; $p = .936$), living status ($t = -0.505$; 95% CI -2.12, 1.26) and employment status ($t = .767$; 95% CI -0.95, 2.15). In contrast, results of the univariate analysis undertaken for the Indian cohort demonstrated a statistically significant differences in scores for 'attending clinical placement' and age ($r = .27$ $p = .003$), and year of study ($F = 6.38$;

TABLE 4 Concerns about the altered study environment and preventative behaviours

	Australia	India	<i>p</i> value	MD [95% CI]
	Mean (SD)	Mean(SD)		
Concerns about the altered study environment				
Attending clinical placement	8.53 (3.2)	9.62 (3.1)	.013	-1.08 [-1.94, -0.23]
Completion of clinical placement	8.58 (3.7)	8.79 (3.4)	.677	-0.20 [-1.16, 0.76]
Grade attainment	11.13(3.1)	11.66(3.0)	.207	-0.53 [-1.37, 0.30]
Total concerns	28.24(7.3)	30.07 (8.1)	.089	-1.83 [-3.94, 0.27]
	Strongly agree/agree (%)	Strongly agree/agree (%)	<i>p</i> value	OR [95% CI]
Preventative behaviours				
I would attend university if				
I had symptoms consistent with COVID-19	0	0		
I had symptoms of COVID-19 and had an examination	5 (5.1%)	1 (0.9%)	.11	5.96 [0.68, 51.89]
I was well but knew a fellow student had contracted COVID-19	7 (7.3%)	2 (1.8%)	.08	4.22 [0.86, 20.82]
A family member or close contact had COVID-19	7 (7.2%)	11 (9.8%)	.49	0.71 [0.26, 1.90]
I was well but knew that the number of cases of COVID-19 had increased in Australia/India	26 (26.8%)	29 (25.6%)	.92	1.03 [0.56, 1.91]
I needed to meet with other students	25 (25.7%)	4 (3.6%)	<.0001	9.21 [3.08, 27.55]
I needed to access the library	38 (39.1%)	9 (8%)	<.00001	7.20 [3.26, 15.90]
I had a group assignment	20 (20.6%)	9 (8%)	.01	2.93 [1.26, 6.77]
I had no other place to go to study	53 (54.7%)	14 (13.9%)	<.00001	8.15 [4.11, 16.16]

$p = .001$). Older students and those in the third and fourth year of their study had significantly higher concerns for 'attending clinical placement' compared to first and second year students. Results of the multiple regression analysis undertaken for the Indian cohort using the demographic variables indicated that there was a collective significant effect between the age and year of study and attending clinical placement', ($F(2, 109) = 9.723, p = .000, R^2 = .15$). Further examination of the individual demographic variables indicated that year of study was a significant predictor of 'attending clinical placement' ($\beta = 0.573, 95\% \text{ CI}: 0.544-2.429$).

4.7 | Preventative behaviours

None of the students in either cohort indicated that they would attend university if they 'had symptoms consistent with COVID-19'. Although more Australian students agreed/strongly agreed that they would attend university if they 'had COVID-19 symptoms and an examination' or 'were well but knew a fellow student had contracted COVID-19', this was not statistically significant. In contrast, slightly more Indian students agreed/strongly agreed that they would attend university if 'a family member or close contact had COVID-19'. However, this was also non-significant. Significantly more Australian than Indian students agreed/strongly agreed that they would go to

the university if they needed to meet with other students (OR 9.21; 95%CI 3.08, 27.55), had to access the library (OR 7.20; 95%CI 3.26, 15.90), had a group assignment (OR 2.93; 95%CI 1.26, 6.77) or had no other place to go to study (OR 8.15; 95%CI 4.11, 16.16) (Table 4).

5 | DISCUSSION

The COVID-19 pandemic has disrupted traditional teaching methods for undergraduate nurses, bringing about an unprecedented change in universities globally. The aim of this study was to compare adjustment to the 'new normal' due to COVID-19 in terms of anxiety, wellbeing, coping strategies, knowledge, information and preventative behaviours between the undergraduate nurses studying in Australia and India. The results of this study found that the mean anxiety score for the Australian nursing student cohort was significantly higher compared with the Indian cohort. It is worthy to note that the Indian nursing student cohort were all living at home with their family and that this kind of living circumstance is usual in India. The occurrence of COVID-19 into Indian society was gradual and the media took an active role in discussing preventive and protective measures from the onset of the pandemic (Balarabe, 2020). In addition, before going into complete lockdown students were involved in the health teaching about preventive measures for COVID-19 to the

public (Government of India, 2020b). The media campaign and being actively involved in health education provided a lot of information and knowledge and could be a reason while Indian students felt less anxious. For the Australian cohort, the higher anxiety scores was not associated with age, year of study, living status and employment status. The high anxiety scores may be caused by the added pressure of studying online, fear of getting COVID-19 during clinical placements and the inability to meet the existing cost of living during the pandemic. The literature indicates that Australian undergraduate nursing students had four predominate stressors, that is, their study, finances, family and health (Lo, 2002). During the COVID-19 pandemic, all of these stressors were exacerbated, causing increased levels of anxiety. Indeed, study situations radically changed, ability to earn an income decreased due to loss or reduction in hours of paid employment, family pressures increased with home schooling and lockdown, and concern for personal health was paramount.

While Australian nursing students had higher anxiety generally, Indian students reported significantly greater anxiety regarding the health of their loved ones in comparison to the Australian group. Indian culture is more bound with family and they are more dependent on their family for all their needs especially until marriage (Chadda & Deb, 2013); therefore, the health of their loved ones is important for their existence. Also traditionally in the Indian culture, family cohesion is important and the household structure is often made up of at least three generations. Support of the family is a socio-cultural norm and alleviates the economic burden on the nursing student. Although family may play an important role in the lives of Australian nursing students, results of this study indicated that their anxiety is not focused on family.

Having difficulty eating, sleeping and concentrating are all symptoms of anxiety (Black Dog Institute, 2020). This study found the Australian student cohort had higher difficulty eating, sleeping and concentrating than their Indian nursing student counterparts. This result is congruent with the overall mean anxiety scores. A possible reason for the higher anxiety scores, hence difficulty eating, sleeping and concentrating, in the Australian cohort is that they have not previously encountered other infectious disease epidemics or endemics that Indian students may be accustomed to. India's burden of infectious diseases are vast, ranging from tuberculosis to enteric pathogens such as typhoid and cholera and to H1N1 pandemic influenza (John et al., 2011). Therefore, Indian students could be more conversant with large outbreaks and the public health measures that are implemented as a result. This could explain the differences in anxiety levels between the two countries.

Time spend watching, reading or listening to news stories about COVID-19, including the use of social media, was significantly limited by Australian nursing students compared to the Indian group. Australian students used this as a coping strategy to alleviate their anxiety. In contrast, Indian student's anxiety levels were not elevated, therefore limiting their time on social media and watching the news was not something that they enacted. With regard to coping strategies though, a significantly higher number of Indian students increased their participation in exercise, partook in activities that

they enjoyed and talked with people they trust about their concerns compared to the Australian cohort. The usual lifestyle pattern of the Indian cohort before lockdown was a highly structured and very tight schedule of study and clinical duties and they lived in university accommodation. As a result of the intensity of structure, while living in university accommodation, the students do not undertake much exercise. During the lockdown period, the university accommodation was shutdown requiring Indian students to live with their families. Hence the highly regulated approach that filled their day when living the university accommodation relaxed, and they found that they had time for exercise. In addition, the university provided planned yoga sessions through their volunteer programme, receiving yoga videos each weekend for the week ahead. Yoga is known to have positive effects and can assist with reducing anxiety (Hofmann, Andreoli, Carpenter & Curtiss, 2016), and the planned approach to reducing students anxiety during lockdown appears to have been beneficial.

A significantly greater number of students in the Indian cohort (95.6%) indicated that they had sufficient knowledge of COVID-19 compared to the Australian cohort (82.9%) $p = .005$. Both student cohorts indicated that their respective universities had provided them with sufficient information about COVID-19. However when compared to the Australian cohort, the majority of the students in the Indian cohort indicated that they received information about COVID-19 from social media. This could be due to the stoppage of printing mainstream newspapers thereby driving people to obtain their information via social media. Numerous people have obtained information via social media hence diffusion of information and misinformation about COVID-19 via Social Media has been described use as an 'Infodemic' (Cinelli et al., 2020). Just after lockdown, the Indian student cohort created a WhatsApp group and forwarded all information from the university as well as relevant information from social media regarding COVID-19 to the group. Although the Indian cohort demonstrated significantly higher sufficient knowledge of COVID-19, both scores were relatively high. Research regarding the H1N1 respiratory pandemic showed that knowledge had a significant influence on attitudes and practices (Yap et al., 2010). It is also important to acknowledge though, that there were no significant differences in knowledge relating to protecting themselves, hand-washing and social distancing due to COVID-19 between the two cohorts.

When comparing concerns regarding the altered student study environment, there were no statistically significant differences in the mean total ASSET score and similarly, there were no statistically significant differences between the two cohorts for the ASSET subscales completion of clinical placement and grade attainment. However, there were significantly higher concerns among the Indian cohort for the subscale 'attending clinical placement'. In particular, those students in years three and four had significantly higher concerns relating to attending clinical placement. The requirements of the Indian student's university stipulates that students must attain 100% attendance in both clinical and theoretical components of the undergraduate programme. The Indian cohort had completed

all theory elements, but only 50% of the required clinical hours for the year. This may have contributed to higher concerns about programme completion in the required time. In contrast, the Australian nursing students had to complete their clinical placement as part of their usual studies and even during lockdown clinical placements continued.

Students in both cohorts indicated that they would not go to the university campus in the event they had 'symptoms consistent with COVID-19'; 'had symptoms of COVID-19 and had an examination'; were 'well but knew a fellow student had contracted COVID-19'; 'a family member or close contact had COVID-19'; and 'if they were well but knew that the number of cases of COVID-19 had increased in their countries'. This indicates that both student groups would abide by the public health preventative measures implemented as a result of the COVID-19 pandemic. However, a significantly larger proportion of students from the Australian cohort indicated that they would go to the university if they needed to meet with other students, had to access the library, had a group assignment or had no other place to go to study. This could be because the Indian cohort were given access to online reference textbooks during lockdown removing any need to attend a library. The Australian students still had physical access to the university library, and perhaps, this is the reason for them indicating that they would attend the library under these circumstances. Additionally, stricter lockdown restrictions imposed on the Indian students may have not enabled attendance at the university for any reason.

5.1 | Strengths of the study

To the best of our knowledge, this is the first study to compare the knowledge, anxiety, academic concerns and preventative behaviours among Australian and Indian students. A major strength of the study was that the study was conducted during the COVID-19 pandemic actual lockdown period in both countries, providing student perceptions in real time, thus mitigating any recall bias. Secondly, the students in both groups were comparable for age and study status thereby removing the effect that age and being an international student would have on the results. In addition, this study included students from two different countries, thus demonstrating the moderating effect of culture during the COVID-19 pandemic. Finally, the data were collected using validated instruments and questions developed by experienced investigators using a rigorous study method.

5.2 | Limitations of the study

Despite the rigour in which the study was conducted some limitations need to be acknowledged. Firstly, this study was conducted using convenience sampling from two universities which limits generalisation to other institutions. Secondly, the data were collected using a self-administered online survey which is known to be subject to responder bias. The results of this study are exclusive to health

students as they have the knowledge of respiratory infections and cannot be generalised to students of other disciplines.

5.3 | Recommendations for further research

Further studies using larger samples and from various universities are warranted to enable comparisons between adjusting to the new normal among the nursing students in different countries. In addition, research need to be conducted to identify strategies to support students to adjust to the altered methods of learning and achieve academic success.

6 | CONCLUSION

In the dynamic COVID-19 context, universities implemented a number of measures to slow the spread of the virus and to try to assist students with a continuation of their degrees. The findings provide the first documentation of the comparison of knowledge, anxiety, academic concerns and preventative behaviours among undergraduate nursing students in two countries. Additional support from the academics and the university with online learning and resources may assist undergraduate nursing students to adjust to the 'new normal' and enable them to achieve academic success.

7 | RELEVANCE TO CLINICAL PRACTICE

It is vital to ensure that students' knowledge around immediate health threats such as COVID-19 is evidence-based, thereby removing stigma and inaccurate perceptions that contribute towards anxiety. Academics also need to provide assurance to students about the effectiveness of alternate or varied ways of learning to minimise any anxiety or stress caused due to concerns relating to academic progression. Undergraduate students may benefit from additional support from the academics and the university as well as from staff in the clinical setting with online learning and resources in order to adjust to the 'new normal' and enable them to achieve academic success.

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CONFLICT OF INTEREST

Nil conflict of interest to declare.

AUTHOR CONTRIBUTIONS

Sr. Terese Kochuvilayil, RN; MSN (Cardiovascular & Thoracic Nursing); PhD candidate: conception and design for the Indian students, acquisition of data, assistance with data analysis and interpretation of data; Revising the manuscript critically for important intellectual content. Ritin S. Fernandez - RN; MN (Critical Care);

PhD: conception and design for the Australian and Indian students, acquisition of data, analysing and interpretation of data; drafting the manuscript and critically reviewing the manuscript for important intellectual content. Lorna Moxham – BNS; M.Ed; PhD: conception and design for the Australian and Indian students, acquisition of data, assistance with data analysis and interpretation of data; Revising the manuscript critically for important intellectual content. Heidi Lord – RN; MPH; PhD candidate: conception and design for the Australian and Indian students, acquisition of data, analysing and interpretation of data; drafting the manuscript and critically reviewing the manuscript for important intellectual content. Albara Alomari – RN, MSc (Hon), PhD: conception and design for the Australian and Indian students, acquisition of data, assistance with data analysis and interpretation of data; Revising the manuscript critically for important intellectual content. Leanne Hunt, RN; MHM; PhD: conception and design for the Australian and Indian students, acquisition of data, assistance with data analysis and interpretation of data; Revising the manuscript critically for important intellectual content. Rebekkah Middleton – BN; MPhil; PhD: conception and design for the Australian and Indian students, acquisition of data, assistance with data analysis and interpretation of data; Revising the manuscript critically for important intellectual content. Elizabeth J. Halcomb – RN; BN (Hons); PhD: conception and design for the Australian and Indian students, acquisition of data, assistance with data analysis and interpretation of data; Revising the manuscript critically for important intellectual content. Sr. Terese Kochuvilayil and Ritin S. Fernandez should be considered joint first author.

DATA AVAILABILITY STATEMENT

Research data are not shared.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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