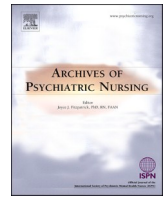




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Resilience as a protective factor on the quality of life (QoL) of Indian nursing students during the COVID-19 pandemic

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ABSTRACT

Background: The COVID-19 pandemic negatively impacted the quality of life of individuals around the world, including health care professionals. There has been little research that examines the role of resilience concerning the impact of COVID-19 on the quality of life of nursing students. This study aimed to determine how resilience influenced the quality of life among nursing students during the COVID-19 pandemic.

Methods: A cross-sectional research design was adopted for this study. A total of two hundred sixty-eight nursing students from three universities, South India responded in the web-based survey. Data was collected using self-reported questionnaires in June 2021.

Results: Our findings revealed that the participants' resilience was normal, which had a moderate impact on the quality of life of nursing students during the COVID-19 pandemic. The COVID-19 impact on QoL significantly differed with year of education ($F = 3.087; p < 0.02$) and university ($F = 6.697, p < 0.001$). Bivariate analysis revealed significant inverse relationships between the impact of COVID-19 on quality of life with resilience ($r = -0.259; p < 0.001$) and perceived knowledge on COVID-19 ($r = -0.168; p < 0.006$).

Conclusion: In our study, we found that resilience had a moderate impact on the quality of life of nursing students during the COVID-19 pandemic. Therefore, it is important to promote students' resilience and improve their quality of life during stressful situations.

Introduction

The COVID-19 pandemic led to an unprecedented challenge to public health. It also caused stress, an infection threat, and social strains, all of which negatively impacted healthcare workers' quality of life (QoL) (Nabe-Nielsen et al., 2021; Nicola et al., 2020). The World Health Organization defines the quality of life as a person's understanding of their role in life regarding their aspirations, ambitions, standards, interests, and desires, taking into consideration the cultural background and value system in which they exist (WHO, 1995). Undoubtedly, COVID-19 pandemic has been stressful for nursing students as there were disruptions in nursing education. For example; a sudden shift from offline to online classes and missing of learning opportunities in clinical posting. These stressful situations may have a detrimental effect on well-being and quality of life (QoL) among nursing students (Salvi, Mendes, &

Martino, 2020).

Resilience is defined as the ability to overcome adversity and cope effectively in problems faced which also includes how one learns to develop stronger flexibility from situations encountered (Thomas & Revell, 2016). According to studies among healthcare professionals, psychological resilience protects against mental health issues associated with disasters/emergencies (Duncan, 2020; Labrague, 2021). Research has also shown that resilient health care workers (HCWs) are more likely to rebound effectively and endure the pandemic's psychological burden than non-resilient workers (Foster, Roche, Giandinoto, & Furness, 2020). Prior research also demonstrated a protective role of resilience on mental health problems such as depression and stress among nursing students (Guillasper, Oducado, & Soriano, 2021; Mcdermott et al., 2020). Therefore, psychological resilience is critical when recovering from such distress and issues to acquire internal control, empathy,

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positive self-concept, organization, and optimism in their everyday challenges (Guillasper et al., 2021).

The coronavirus disease 2019 (COVID-19) pandemic has reportedly affected the mental health and quality of life of the general population (Bryson, 2021; Epifanio et al., 2021), patients (Bryson, 2021; Wong, Shah, Johnston, Carlsten, & Ryerson, 2020), and health care professionals (Al Maqbali, Al Sinani, & Al-Lenjawi, 2021; Stojanov et al., 2021; Trumello et al., 2020). During the COVID-19 pandemic, nursing students could be vulnerable to stress due to their young age and exposure to clinical postings (Gallego-Gómez et al., 2020; Leigh et al., 2020; Lovrić, Farčić, Mikšić, & Včev, 2020). This idea is supported by a few studies that report poor quality of life among nursing students during the COVID-19 pandemic (Keener, Hall, Wang, Hulsey, & Piam-jariyakul, 2021). While the COVID-19 pandemic made a significant impact on nursing students, most of the studies on COVID-19 in India have focused on examining knowledge and academic concerns (Gohel et al., 2021; Kochuvilayil et al., 2021; Vijayalakshmi, SaiYathin, Sreelatha, Kathyayani, & SadanandaReddy, 2021) and impact on nursing education (Singh et al., 2021). Although a few studies (Cruz et al., 2018; Jain, Vaidya, Das, Christian, & Patel, 2021) have reported on the quality of life of nursing students from India, there is a paucity of information on impact of resilience on Quality of Life (QOL) during the COVID-19 pandemic among nursing students. Additionally, failing to recognize the negative impact of the COVID-19 pandemic on the QOL of nursing students may result in negative consequences (Guillasper et al., 2021). Thus, the aim of the study was to explore whether nursing students' resilience and quality of life correlated during the COVID-19 pandemic.

Materials and methods

This was a cross sectional survey conducted among nursing students from nursing colleges under three universities in South India. The data was collected in June 2021.

The sample for the present study was selected conveniently. The data was collected using a structured online questionnaire developed using Google Forms. The questionnaire link was sent via WhatsApp to the student groups. The introductory part of this Google form included brief Information on the background, aim, objectives, procedures, voluntary nature of participation, and declarations of anonymity and confidentiality. The volunteered students were instructed to complete the questionnaire via clicking the link. A completed survey was automatically registered online. A total of 268 student nurses responded to the Questionnaire.

The survey instrument had three parts. The first part of the questionnaire included the items to collect back ground information of the such as age, gender, year of education, name of the college and university and perceived knowledge on COVID-19 ("On a scale from 1 to 10, how knowledgeable are you about coronavirus disease?"). The Part 2 included **The Brief Resilience Scale** (Smith et al., 2008) to measure nursing students' perception of their ability to bounce back or recover from stress. The Brief Resilience Scale (BRS) consisted of six items with a 5-point Likert response scale, ranging from 1 = strongly disagree to 5 = strongly agree. Three items are positively phrased (1,3,5) and the other three are negatively phrased (2,4,6). Internationally, the psychometric properties of this scale were well established. This scale was found to have good internal consistency in a recent study of undergraduate students in China ($\alpha = 0.71$) (Fung, 2020). The possible score range on the BRS is from 1 (low resilience) to 5 (high resilience). The level of resilience was classified as *low resilience* (1.00–2.99), *normal resilience* (3.00–4.30), and *high resilience* (4.31–5.00) based on the mean score.

In part 3 the questionnaire included **COVID-19–Impact on Quality of Life (COV19-QoL)** scale was used to assess the perceived impact on the COVID-19 pandemic on quality of life, among nursing students. This was a 5-point Likert response scale, ranging from 1 = strongly disagree to 5 = strongly agree. The participants were requested to reflect their feelings as thoughts during the past seven days. This scale consisted of

six items to assess the participants' perceptions about the effects of COVID-19 on their overall QOL (Item1), possible deterioration in their mental and physical health (Items 2&3), anxiety (Item 4), depression (Item 5) and personal safety (Item 6) related to physical health and risk of being contaminated. The possible score ranges from 6 to 30 and the higher score indicated a greater impact on one's quality of life. Cronbach's alpha for this scale was >0.85 for both the general population ($\alpha = 0.885$) and people with mental illness ($\alpha = 0.856$) (Repisti et al., 2020). In our study, the Cronbach's alpha for this scale was 0.84. The English version of the questionnaire was piloted among 30 students and found it was feasible.

Ethical consideration

The research proposal was approved by the Institute Ethics Committee. The researchers also obtained formal permission from the concerned authorities for data collection. The students were informed that participation or non-participation in this survey would not affect their academics in any way. Online consent was taken from the participants. The participants were requested to click on the Google link consent page after reading and marking on their agreement to complete the questionnaire.

Statistical analysis

The data were analysed using appropriate statistical software (SPSS 21 version) and the results were presented in tabular form. Descriptive statistics such as frequency, percentage, mean and standard deviation were performed. Using independent *t*-tests and one-way analyses of variance, we examined group differences between socio-demographic variables and resilience and quality-of-life scores in the context of the COVID-19 pandemic. Pearson's *r* correlation coefficient was used to determine the relationship between the participants' resilience and quality of life. The level of significance was fixed at 0.05 levels.

Results

In the present study, there were 268 participants, 88.2 % of whom were female. The mean age of the participants was 20 years (1.25, SD, Range = 6.00). More than half (51.5 %) of the participants were aged 20 years or younger. The participants' mean perceived knowledge on Covid –19 was 7.60 (1.74, SD, range = 9.00) (Table 1).

The mean score on the brief resilience scale was 3.06 (0.39). Most participants (65.7 %) reported having a normal level of resilience, while only 1.5 % reported having a high level. However, nearly one-third of the participants (32.8 %) perceived that they had a low level of

Table 1
Socio-demographic details of the participants.

Variable	Mean	SD	n	%
Age (years)				
<20			138	51.5
>21			130	48.5
Gender				
Male			30	11.2
Female			238	88.8
Year of education				
First year			79	29.5
Second year			52	19.4
Third year			38	14.2
Fourth year			99	36.9
University				
A			180	67.2
B			28	10.4
C			60	22.4
Age (years)	20.35	1.25		
Perceived knowledge on Covid-19	7.60	1.74		

resilience (Table 2).

Table 3 shows the mean composite score on the COVID-19-QoL scale was 2.74 (0.77, SD), which reflects a moderate level of impact on participants' quality of life. Item-wise analysis revealed that the COVID-19 pandemic had the highest impact on participants' quality of life (M = 2.88; 1.06, SD), personal safety (M = 2.88; SD = 1.00) and feeling of tension (M = 2.83; 1.05, SD). On the other hand, the COVID-19 had the lowest impact on nursing students' feelings of depression (M = 2.51; 1.04, SD).

There were significant differences in the COVID-19 impact on QoL of nursing students about the year of education (F = 3.087; p < 0.02) and university (F = 6.697, p < 0.001). Final-year nursing students (M ± SD, 17.29 ± 4.62) and students from university 'C' (M ± SD, 17.87 ± 4.51) perceived that they had a greater COVID-19 impact on QoL compared to other students. On bivariate analysis, there were significant inverse relationships found between the impact of COVID-19 on quality of life with resilience (r = -0.259; p < 0.001) and perceived knowledge on COVID-19 (r = -0.168; p < 0.006) (Table 4).

Discussion

The present study was aimed to explore whether nursing students' resilience and quality of life correlated during the COVID-19 pandemic. The results demonstrated that the participants had adequate knowledge of COVID-19, and their perceived level of resilience was normal. The impact of COVID-19 on nursing students' quality of life was negatively correlated with their resilience and knowledge of COVID-19.

In the present study the perceived mean knowledge score was 7.60 which was equivalent to 76 %. These findings reflect a recent study, which showed an adequate knowledge on COVID-19 (Vijayalakshmi et al., 2021). However, this mean score was lower than that reported by earlier studies among nursing students (Begum, 2020; Medina Fernández et al., 2021). Possibly, this finding may be due to the differences in the questionnaires. In line with previous studies (Guillasper et al., 2021), in this study the COVID-19 pandemic had the highest impact on participants' quality of life, personal safety and lowest impact on their feelings of depression. However, the mean composite score on the COVID-19-QoL scale was 2.74 (SD-0.77), which is lower than QoL of nursing students (M = 3.04), (Guillasper et al., 2021) and general population (M = 2.91) (Repisti et al., 2020) reported in other recent studies. Although the impact of COVID-19 was lower than in other studies, nursing students in this study perceived that the COVID-19 pandemic affected their quality of life.

In our study, there was an inverse relationship between the impact of COVID-19 on quality of life and resilience (r = -0.259; p < 0.001). This finding is consistent with previous studies which reported inverse association between resilience with patterns of COVID-19 stress, fear, anxiety, and depression (Barzilay et al., 2020; Guillasper et al., 2021; Oducado et al., 2021; Zhang et al., 2020). This necessitates the development of preventive strategies to address the impact of COVID-19 on the QoL of nursing students. Similarly, there was a significant inverse

Table 2
Participants' responses to Brief Resilience Scale.

Items	Mean	Standard deviation
I tend to bounce back quickly after hard times	3.06	0.98
I have a hard time making it through stressful events	2.95	0.98
It does not take me long to recover from a stressful event.	3.19	0.91
It is hard for me to snap back when something bad happens	2.93	0.99
I usually come through difficult times with little trouble	3.25	0.94
I tend to take a long time to get over set-backs	3.00	0.92
Composite score	3.06	0.39

Table 3
Participants' responses to COVID-19 impact on Quality-of-Life Scale.

Items	Mean	Standard deviation
I think my quality of life is lower than before	2.88	1.06
I feel that my personal safety is at risk	2.88	1.00
I feel more tense than before	2.83	1.05
I think my physical health may deteriorate.	2.74	1.03
I feel more depressed than before	2.62	1.06
I think my mental health has deteriorated	2.51	1.04
Composite score	2.74	0.77

Table 4
Correlation between COVID-19 impact on Quality-of-Life and socio-demographic variables.

Variable	Mean	SD	t/F statistics/r-value	p-Value
Age			-1.308	0.19
<20	2.68	0.74		
>21	2.81	0.81		
Gender			-1.713	0.08
Male	2.52	0.99		
Female	2.77	0.74		
Year of education				
First year	2.56	0.71		
Second year	2.83	0.81	3.087	0.02*
Third year	2.65	0.82		
Fourth year	2.88	0.77		
University				
A	2.73	0.72	6.697	0.001*
B	2.35	1.01		
C	2.98	0.75		
Age			0.50	0.41
Perceived knowledge on Covid-19			-0.168	0.006*
Resilience			-0.259	0.001*

* p < 0.05.

relationship between the impact of COVID-19 on quality of life and perceived knowledge on COVID-19 (r = -0.168; p < 0.006). This finding was in support of a previous study which shown less fear and stress among nursing students those had a greater knowledge on COVID-19 (Medina Fernández et al., 2021). This study also demonstrated that the impact of the COVID-19 on QoL was significantly higher among final year nursing students (F = 3.087; p < 0.02). These findings may be explained by the perception of final-year students that exposure to patients with COVID-19 infection may increase their risk of getting infected, leading to a greater impact on their quality of life. These findings were in corresponding with earlier studies which indicated providing care to COVID-19 patients were associated with a higher level of fear (Rahman et al., 2020) and depression (Tee et al., 2020). However, the impact of COVID-19 on nursing students' quality of life was not significantly differed by age or gender. These findings were contrary with the literature which reported impact of the COVID-19 on QoL was significantly higher among female nursing students (Guillasper et al., 2021). We can attribute this finding to the greater disparity between males (11.2 %) and females (88.8 %) in our sample. Also, students from university 'C' perceived to have a greater COVID-19 impact on QoL compared to other students (F = 6.697, p < 0.001). However, it is necessary to interpret the findings cautiously since each group had a different number of participants.

Prior research showed that resilience-training programs to improve students' ability to respond to stressful situations like COVID-19 pandemic (Helmreich et al., 2017; Joyce et al., 2018). Also, few studies suggest that developing an educational culture of trustworthiness may facilitate the development of resilience in nursing students (Amsrud, Lyberg, & Severinsson, 2019). On the other hand, a recent review of the literature suggests that resilience is not limited to one's level of personal resilience skills and abilities (i.e., trait resilience), but

also includes family support, social support and social participation to improve mental health and wellbeing (Coulombe et al., 2020; Rabelo et al., 2016; Xiao, Zhang, Kong, Li, & Yang, 2020). Therefore, nursing educators must explore the supportive systems of the students and assist them in strengthening their resilience by being role models and forming strong, caring, and supportive relationships (Froneman, Du Plessis, & Koen, 2016).

Limitations

We acknowledge that the current study has certain limitations, including a cross-sectional survey design, an online survey using self-reported questionnaires, and a convenience sample from three universities. The study only investigated the correlation, not the causal impact of resilience and COVID-19 on nursing students' quality of life. Additionally, self-reported questionnaires may result in response bias. Therefore, the generalisability of the findings is limited. The present study nevertheless contributes to a better understanding of the impact of the COVID-19 pandemic on nursing students' quality of life. The present study findings may be helpful for nurse educators to develop and implement educational programs to strengthen resilience among nursing students.

Conclusion

In summary, study findings provide an insight into the resilience of nursing students and the impact of the COVID-19 pandemic on their quality of life. Similar to previous studies, we also found that students with greater resilience had a better quality of life. However, nursing students in this study possess a normal level of resilience which indicates the need to strengthen the resilience to face adversities such as the COVID-19 pandemic in their professional life. Therefore, it is important to promote students' resilience and improve their quality of life during stressful situations.

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Conflict of interest

None.

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References

- Al Maqbali, M., Al Sanini, M., & Al-Lenjawi, B. (2021). Prevalence of stress, depression, anxiety and sleep disturbance among nurses during the COVID-19 pandemic: A systematic review and meta-analysis. *Journal of Psychosomatic Research*, 141, Article 110343.
- Amsrud, K. E., Lyberg, A., & Severinsson, E. (2019). Development of resilience in nursing students: A systematic qualitative review and thematic synthesis. *Nurse Education in Practice*, 41, Article 102621. <https://doi.org/10.1016/j.nepr.2019.102621>
- Barzilay, R., Moore, T. M., Greenberg, D. M., DiDomenico, G. E., Brown, L. A., White, L. K., & Gur, R. E. (2020). Resilience, COVID-19-related stress, anxiety and depression during the pandemic in a large population enriched for healthcare providers. *Translational Psychiatry*, 10(1), 291. <https://doi.org/10.1038/s41398-020-00982-4>
- Begum, F. (2020). Knowledge, attitudes, and practices towards COVID-19 among B.Sc. Nursing students in selected nursing institution in Saudi Arabia during COVID-19 outbreak: An online survey. *Saudi Journal of Nursing and Health Care*, 3, 194. <https://doi.org/10.36348/sjnhc.2020.v03i07.002>
- Bryson, W. J. (2021). Long-term health-related quality of life concerns related to the COVID-19 pandemic: A call to action. *Quality of Life Research*, 30(3), 643–645.
- Coulombe, S., Pacheco, T., Cox, E., Khalil, C., Doucerain, M. M., Auger, E., & Meunier, S. (2020). Risk and resilience factors during the COVID-19 pandemic: A snapshot of the

- experiences of Canadian workers early on in the crisis. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.580702>
- Cruz, J. P., Felicilda-Reynaldo, R. F. D., Lam, S. C., Machuca Contreras, F. A., John Cecily, H. S., Papathanasiou, I. V., & Colet, P. C. (2018). Quality of life of nursing students from nine countries: A cross-sectional study. *Nurse Education Today*, 66, 135–142. <https://doi.org/10.1016/j.nedt.2018.04.016>
- Duncan, D. L. (2020). What the COVID-19 pandemic tells us about the need to develop resilience in the nursing workforce. *Nursing Management*, 27(3), 22–27.
- Epifanio, M. S., Andrei, F., Mancini, G., Agostini, F., Piombo, M. A., Spicuzza, V., & La Grutta, S. (2021). The impact of COVID-19 pandemic and lockdown measures on quality of life among Italian general population. *Journal of Clinical Medicine*, 10(2), 289.
- Foster, K., Roche, M., Giandinoto, J. A., & Furness, T. (2020). Workplace stressors, psychological well-being, resilience, and caring behaviours of mental health nurses: A descriptive correlational study. *International Journal of Mental Health Nursing*, 29(1), 56–68.
- Froneman, K., Du Plessis, E., & Koen, M. P. (2016). Effective educator-student relationships in nursing education to strengthen nursing students' resilience. *Curationis*, 39(1), 1595. <https://doi.org/10.4102/curationis.v39i1.1595>
- Fung, S. F. (2020). Validity of the brief resilience scale and brief resilient coping scale in a Chinese sample. *International Journal of Environmental Research and Public Health*, 17(4), 1265. <https://doi.org/10.3390/ijerph17041265>
- Gallego-Gómez, J. L., Campillo-Cano, M., Carrión-Martínez, A., Balanza, S., Rodríguez-González-Moro, M. T., Simonelli-Muñoz, A. J., & Rivera-Caravaca, J. M. (2020). The COVID-19 pandemic and its impact on homebound nursing students. *International Journal of Environmental Research and Public Health*, 17(20), 7383.
- Gohel, K. H., Patel, P. B., Shah, P. M., Patel, J. R., Pandit, N., & Raut, A. (2021). Knowledge and perceptions about COVID-19 among the medical and allied health science students in India: An online cross-sectional survey. *Clinical Epidemiology and Global Health*, 9, 104–109. <https://doi.org/10.1016/j.cegh.2020.07.008>
- Guillasper, J. N., Oducado, R. M. F., & Soriano, G. P. (2021). Protective role of resilience on COVID-19 impact on the quality of life of nursing students in the Philippines. *Belitung Nursing Journal*, 7(1), 43–49. <https://doi.org/10.33546/bnj.1297>
- Helmreich, I., Kunzler, A., Chmitorz, A., König, J., Binder, H., Wessa, M., & Lieb, K. (2017). Psychological interventions for resilience enhancement in adults. *Cochrane Database of Systematic Reviews*, 2017(2). <https://doi.org/10.1002/14651858.CD012527>
- Jain, V., Vaidya, A., Das, N., Christian, S., & Patel, P. (2021). A study to assess the quality of life of under graduate B.Sc. Nursing students of Dinsha Patel College of Nursing, Nadiad. *Indian Journal of Forensic Medicine & Toxicology*, 15(3), 595–598. <https://doi.org/10.37506/ijfmt.v15i3.15369>
- Joyce, S., Shand, F., Tighe, J., Laurent, S. J., Bryant, R. A., & Harvey, S. B. (2018). Road to resilience: A systematic review and meta-analysis of resilience training programmes and interventions. *BMJ Open*, 8(6), Article e017858.
- Keener, T. A., Hall, K., Wang, K., Hulsey, T., & Piamjariyakul, U. (2021). Quality of life, resilience, and related factors of nursing students during the COVID-19 pandemic. *Nurse Educator*, 46(3), 143–148.
- Kochuvilayil, T., Fernandez, R. S., Moxham, L. J., Lord, H., Alomari, A., Hunt, L., & Halcomb, E. J. (2021). COVID-19: Knowledge, anxiety, academic concerns and preventative behaviours among Australian and Indian undergraduate nursing students: A cross-sectional study. *Journal of Clinical Nursing*, 30(5–6), 882–891. <https://doi.org/10.1111/jocn.15634>
- Labrague, L. J. (2021). Psychological resilience, coping behaviours and social support among health care workers during the COVID-19 pandemic: A systematic review of quantitative studies. *Journal of Nursing Management*, 29(7), 1893–1905. <https://doi.org/10.1111/jonm.13336>
- Leigh, J., Bolton, M., Cain, K., Harrison, N., Yates-Bolton, N., & Ratcliffe, S. (2020). Student experiences of nursing on the front line during the COVID-19 pandemic. *British Journal of Nursing*, 29(13), 788–789.
- Lovrić, R., Farčić, N., Mikšić, Š., & Včev, A. (2020). Studying during the COVID-19 pandemic: A qualitative inductive content analysis of nursing students' perceptions and experiences. *Education Sciences*, 10(7), 188. <https://doi.org/10.3390/educsci10070188>
- Mcdermott, R. C., Fruh, S. M., Williams, S., Hauff, C., Graves, R. J., Melnyk, B. M., & Hall, H. R. (2020). Nursing students' resilience, depression, well-being, and academic distress: Testing a moderated mediation model. *Journal of Advanced Nursing*, 76(12), 3385–3397. <https://doi.org/10.1111/jan.14531>
- Medina Fernández, I. A., Carreño Moreno, S., Chaparro Díaz, L., Gallegos-Torres, R. M., Medina Fernández, J. A., & Hernández Martínez, E. K. (2021). Fear, stress, and knowledge regarding COVID-19 in nursing students and recent graduates in Mexico. *Investigación y Educación en Enfermería*, 39(1), Article e05. <https://doi.org/10.17533/udea.iee.v39n1e05>
- Nabe-Nielsen, K., Nilsson, C. J., Juul-Madsen, M., Bredal, C., Hansen, L. O. P., & Hansen, Å. M. (2021). COVID-19 risk management at the workplace, fear of infection and fear of transmission of infection among frontline employees. *Occupational and Environmental Medicine*, 78(4), 248–254. <https://doi.org/10.1136/oemed-2020-106831>
- Nicola, M., Alsaifi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., & Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International Journal of Surgery*, 78, 185–193. <https://doi.org/10.1016/j.ijssu.2020.04.018>
- Oducado, R. M., Tuppal, C., Estoque, H., Sadang, J., Superio, D., Real, D. V., & Dela Rosa, R. D. (2021). Internet use, eHealth literacy and fear of COVID-19 among nursing students in the Philippines. *IJERR: International Journal of Educational Research and Innovation*, (15), 487–502. <https://doi.org/10.46661/ijeri.5520>

- Rabelo, I., Lee, V., Fallah, M. P., Massaquoi, M., Evlampidou, I., Crestani, R., & Severy, N. (2016). Psychological distress among Ebola survivors discharged from an Ebola treatment unit in Monrovia, Liberia—A qualitative study. *Frontiers in Public Health*, 4(4), 142. <https://doi.org/10.3389/fpubh.2016.00142>
- Rahman, M. A., Hoque, N., Alif, S. M., Salehin, M., Islam, S. M. S., Banik, B., & Cross, W. (2020). Factors associated with psychological distress, fear and coping strategies during the COVID-19 pandemic in Australia. *Globalization and Health*, 16(1), 95. <https://doi.org/10.1186/s12992-020-00624-w>
- Repišti, S., Jovanović, N., Kuzman, M. R., Medved, S., Jerotić, S., Ribić, E., & Russo, M. (2020). How to measure the impact of the COVID-19 pandemic on quality of life: COVID-19-QoL, the development, reliability and validity of a new scale. Retrieved from https://globalpsychiatry.co.uk/article_1377_5a34264c667afe3d4883f07573b4e216.pdf *Global Psychiatry Archives*, 3(2), 201–210.
- Salvi, C. P. P., Mendes, S. S., & Martino, M. M. F. D. (2020). Profile of nursing students: Quality of life, sleep and eating habits. *Revista Brasileira de Enfermagem*, 73(Suppl. 1), Article e20190365. <https://doi.org/10.1590/0034-7167-2019-0365>
- Singh, H. K., Joshi, A., Malepati, R. N., Najeeb, S., Balakrishna, P., Pannerselvam, N. K., & Ganne, P. (2021). A survey of E-learning methods in nursing and medical education during COVID-19 pandemic in India. *Nurse Education Today*, 99, Article 104796. <https://doi.org/10.1016/j.nedt.2021.104796>
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15(3), 194–200.
- Stojanov, J., Malobabic, M., Stanojevic, G., Stevic, M., Milosevic, V., & Stojanov, A. (2021). Quality of sleep and health-related quality of life among health care professionals treating patients with coronavirus disease-19. *International Journal of Social Psychiatry*, 67(2), 175–181.
- Tee, M. L., Tee, C. A., Anlacan, J. P., Aligam, K. J. G., Reyes, P. W. C., Kuruchittham, V., & Ho, R. C. (2020). Psychological impact of COVID-19 pandemic in the Philippines. *Journal of Affective Disorders*, 277, 379–391.
- Thomas, L. J., & Revell, S. H. (2016). Resilience in nursing students: An integrative review. *Nurse Education Today*, 36, 457–462. <https://doi.org/10.1016/j.nedt.2015.10.016>
- Trumello, C., Bramanti, S. M., Ballarotto, G., Candelori, C., Cerniglia, L., Cimino, S., & Viceconti, M. L. (2020). Psychological adjustment of healthcare workers in Italy during the COVID-19 pandemic: Differences in stress, anxiety, depression, burnout, secondary trauma, and compassion satisfaction between frontline and non-frontline professionals. *International Journal of Environmental Research and Public Health*, 17(22), 8358.
- Vijayalakshmi, P., SaiYathin, R., Sreelatha, M., Kathyayani, B. V., & SadanandaReddy, A. (2021). An online survey to assess knowledge and preventive practices of Indian nursing students towards COVID-19. *The Nursing Journal of India*, CXII(4), 147–152.
- WHO. (1995). The World Health Organization quality of life assessment (WHOQOL): Position paper from the World Health Organization. *Social Science & Medicine*, 41(10), 1403–1409.
- Wong, A. W., Shah, A. S., Johnston, J. C., Carlsten, C., & Ryerson, C. J. (2020). Patient-reported outcome measures after COVID-19: A prospective cohort study. *European Respiratory Journal*, 56(5), Article 2003276. <https://doi.org/10.1183/13993003.03276-2020>
- Xiao, H., Zhang, Y., Kong, D., Li, S., & Yang, N. (2020). The effects of social support on sleep quality of medical staff treating patients with coronavirus disease 2019 (COVID-19) in January and February 2020 in China. *Medical Science Monitor : International Medical Journal of Experimental and Clinical Research*, 26, Article e923549-923541. <https://doi.org/10.12659/MSM.923549>
- Zhang, C., Ye, M., Fu, Y., Yang, M., Luo, F., Yuan, J., & Tao, Q. (2020). The psychological impact of the COVID-19 pandemic on teenagers in China. *Journal of Adolescent Health*, 67(6), 747–755. <https://doi.org/10.1016/j.jadohealth.2020.08.026>