

# BELITUNG NURSING JOURNAL

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## Editorial

Nurse education today: Between teaching and publication focus  
*Joko Gunawan, Yupin Aunguroch, Mary L. Fisher*

## Original Research Article

Coping style, anxiety level, organizational support, and work commitment of educators during the COVID-19 pandemic in the Philippines: A mixed-methods study  
*Norhidayah A. Aragasi, Hamdoni K. Pangandaman*

Citizens' health practices during the COVID -19 pandemic in Indonesia: Applying the health belief model  
*Eko Winarti, Chatarina Umbul Wahyuni, Yohanes Andy Rias, Yudied Agung Mirasa, Sondang Sidabutar, Desi Lusiana Wardhani*

Willingness of university nursing students to volunteer during the COVID-19 pandemic in Brunei Darussalam  
*Amal Atiqah Hamizah Hj Abdul Aziz, Khadzah H. Abdul-Mumin, Hanif Abdul Rahman*

Assessment of the quality of independent nursing practice in Indonesia based on total quality management indicators  
*Devi Sahputra, Paul Lumbantobing, Cyrusz P. Tuppal*

Illness cognition and depression among patients with coronary heart disease  
*Aan Nuraeni, Anastasia Anna, Atlastieka Praptivi, Donny Nurhamsyah*

Effect of care for child development training on cadres' knowledge, attitude, and efficacy in Yogyakarta, Indonesia  
*Akhmadi Akhmadi, Sunartini Sunartini, Fitri Haryanti, Ema Madyaningrum, Mei Neni Sitaresmi*

Senior nurses' perceptions of essential soft skills for novice nurses in a private hospital in Jakarta, Indonesia: A phenomenological study  
*Emawati Emawati, Cicilia Nony Ayuningsih Bratajaya*

Using a mobile application ("PrimaKu") to promote childhood immunization in Indonesia: A cross-sectional study  
*Nani Nurhaeni, Siti Chodidjah, Robiyatul Adawiyah, Astuti Astuti*

Recovery from 'schizophrenia': Perspectives of mental health nurses in the Eastern island of Indonesia  
*Fandro Armando Tasijawa, Suryani Suryani, Titin Sutini, Sinthia Rosanti Maelissa*

## Case Study

The experience of older persons with mental health conditions who interact with healthcare robots and nurse intermediaries: The qualitative case studies  
*Tetsuya Tanioka, Feni Betriana, Tomoya Yokotani, Kyoko Osaka, Rozzano C. Locsin, Beth King, Savina Schoenhofer*

## Letter to Editors

Social stigma towards nurses: Time to refocus on what matters most  
*Yusrila Zolkefi*



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BNJ welcomes submissions of original research articles, review articles, concept analysis, perspectives, letter to editors, research methodology papers, study protocol, case studies, and guest editorials on various clinical and professional topics.

We also welcome "negative" results (i.e., studies which do not support a hypothesized difference or association) provided that the design was robust. Discussion papers that elaborate issues and challenges facing health care in one country are welcomed, provided the discussion is grounded in research-based evidence. The authors are addressing a global audience and a local one.

Nurses and midwives write most papers in BNJ, but there are no constraints on authorship as long as articles fit with the expressed aims and scope. BNJ's intended readership includes practicing nurses and midwives in all spheres and at all levels who are committed to advancing practice and professional development based on new knowledge and evidence; managers and senior members of the nursing and midwifery professions; nurse educators and nursing students; and researchers in other disciplines with interest in common issues and inter-disciplinary collaboration.

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# TABLE OF CONTENTS

DOI: <https://doi.org/10.33546/bnj.v7i4>

## Editorial

Nurse education today: Between teaching and publication focus

*Joko Gunawan, Yupin Aunguroch, Mary L. Fisher*

262-266

## Original Research Article

Coping style, anxiety level, organizational support, and work commitment of educators during the COVID-19 pandemic in the Philippines: A mixed-methods study

*Norhidayah A. Aragasi, Hamdoni K. Pangandaman*

267-276

Citizens' health practices during the COVID -19 pandemic in Indonesia: Applying the health belief model

*Eko Winarti, Chatarina Umbul Wahyuni, Yohanes Andy Rias, Yudied Agung Mirasa, Sondang Sidabutar, Desi Lusiana Wardhani*

277-284

Willingness of university nursing students to volunteer during the COVID-19 pandemic in Brunei Darussalam

*Amal Atiqah Hamizah Hj Abdul Aziz, Khadizah H. Abdul-Mumin, Hanif Abdul Rahman*

285-293

Assessment of the quality of independent nursing practice in Indonesia based on total quality management indicators

*Devi Sahputra, Paul Lumbantobing, Cyrusz P. Tuppal*

294-303

Illness cognition and depression among patients with coronary heart disease

*Aan Nuraeni, Anastasia Anna, Atlastieka Praptiwi, Donny Nurhamasyah*

304-310

Effect of care for child development training on cadres' knowledge, attitude, and efficacy in Yogyakarta, Indonesia

*Akhmadi Akhmadi, Sunartini Sunartini, Fitri Haryanti, Ema Madyaningrum, Mei Neni Sitaresmi*

311-319

Senior nurses' perceptions of essential soft skills for novice nurses in a private hospital in Jakarta, Indonesia: A phenomenological study

*Ernawati Ernawati, Cicilia Nony Ayuningsih Bratajaya*

320-328

Using a mobile application ("PrimaKu") to promote childhood immunization in Indonesia: A cross-sectional study

*Nani Nurhaeni, Siti Chodidjah, Robiyatul Adawiyah, Astuti Astuti*

329-335

Recovery from 'schizophrenia': Perspectives of mental health nurses in the Eastern island of Indonesia

*Fandro Armando Tasijawa, Suryani Suryani, Titin Sutini, Sinthia Rosanti Maelissa*

336-345

## Case Study

The experience of older persons with mental health conditions who interact with healthcare robots and nurse intermediaries: The qualitative case studies

*Tetsuya Tanioka, Feni Betriana, Tomoya Yokotani, Kyoko Osaka, Rozzano C. Locsin, Beth King, Savina Schoenhofer*

346-353

## Letter to Editors

Social stigma towards nurses: Time to refocus on what matters most

*Yusrita Zolkefli*

354-355

# Nurse education today: Between teaching and publication focus

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## Abstract

"Publish or Perish" is no longer an imagination. On the contrary, it is considered a new reality in nursing education today. All nurse scholars, researchers, faculty members, and students are eager and compete with each other to publish their research works in academic journals. Success in this challenge brings personal benefits, especially for academic reputation and promotion, as well as organizational benefits, such as university ranking and sponsorship. However, despite the advantages of faculty publication, the pros and cons of this topic are on the rise. Therefore, this article aims to discuss the publication-related phenomenon in nursing education, followed by concerns and recommendations for consideration.

## Keywords

nursing; education; publication; quality; sustainable development goals

Undoubtedly, in today's digital era, almost all aspects of our lives are affected by technology. In the majority of cases, this digital technology makes our lives easier or more efficient (Gunn, 2020). For example, in the educational aspect, we can learn online from anywhere. We will no longer be left uninformed for updated knowledge as long as we are connected to the Internet. In addition, it connects students and faculty members around the globe with new opportunities and collaborations. Like the publishing world, theses or dissertations that we could only read in a campus library in the past now can be easily accessed with just one click through Electronic Theses and Dissertations (ETDs) (Gunawan, 2018). Also, electronic newspapers, magazines, and journal articles are available with interactive designs and attractive reading formats. In other words, the technology brings benefits to the readers (with easy access), writers or authors (with broader reach), and publishers (with effective and efficient publishing cost).

But, despite all the benefits of the technology, we certainly need to be able to deal with its consequences, particularly related to data security, cybercrime, privacy, digital media population, work overload, etc. (Gunn, 2020). However, in this very article, we only focus on the impact of digital technology in nursing education, especially regarding "publish-or-perish."

"Publish or Perish" is not a new concept. It was initially coined by Coolidge (1932) as an attitude or practice existing within academic institutions, whereby researchers are put *under pressure* to produce journal publications (Rawat & Meena, 2014; Moosa, 2018). This issue is primarily relevant to those working in educational institutions (faculty members, academics, academic researchers, or just researchers) to retain their positions or be deemed successful (Rawat & Meena, 2014; Moosa, 2018).

However, the term *under pressure* or the notion of "Publish or Perish" creates pros and cons among scholars, and there does not seem to be a consensus. Therefore, this article aims to discuss journal publication, its benefits, and its related concerns and recommendations for consideration.

## Publication Benefits

In this section, we describe publication advantages seen from the university level and individual level.

### University level

Indeed, faculty and student publications in academic journals bring many benefits to the university. The number

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of publications is a measure of the institution's research activity and its capability in producing research publications at the international level (Moosa, 2018). Also, it has a significant impact on university rankings, such as QS and Times Higher Education (THE) Rankings. These rankings bring visibility to the university. The rankings are also used for the governments to measure the research excellence of the institution, for a company to select a university as a partner, and for a funding body's decision to invest in research at a university (Elsevier, 2021). In addition, the university ranking is mostly used as a criterion by parents and students (national and international students) when choosing a university (Elsevier, 2021). Therefore, each university provides tremendous efforts for its faculties to publish more articles to get higher rankings and become a world-class university. They do this mainly by their criteria for promotion and tenure.

### Individual level

The impacts of publication on individuals can be seen at the faculty member level and student level. Unquestionably, the academic reputation of a faculty member is highly influenced by their publications today (Rawat & Meena, 2014). Without publication, no one knows our expertise because it is a way of communication among scientists. Publication, however, helps us become known as an expert in our field of the study.

In addition, the quantity and quality of published articles play a major role in faculty academic reputation. The number of articles is used when a tenure track is applied. The faculty member is required, for example, to publish two articles in two years of working experience to get promoted from lecturer to assistant professor position. And the quality of the article is seen from the citation number and the rank of the journal. Usually, to be a professor, each associate professor is required to publish two articles annually in the highest-rank journals. Some may require publications in Q1 Tier 1 journals, a textbook publication, and a number of citations on average, for example, more than 1000 references. Each university has its own criteria.

For students who would like to pursue higher education, the publication is one of the criteria to apply for a PhD program. Publications also help connect the students with scholars worldwide or partners to collaborate in research projects, seminars, conferences, and other educational events (Moosa, 2018). Moreover, many students who have a high number of publications before they graduate can make a working contract with a university or a company. Or, after they graduate, it is easy for them to find a teaching or researcher position. In other words, publishing is a new way of life among faculty members and students nowadays.

### Publication Concerns

In this section, we discuss the disadvantages and concerns in the publication.

### Publish or Perish

In spite of all the benefits of publication, there are still many universities, including their faculty members, who struggle to follow this requirement. For the university where the "publish or perish" culture does exist, it is not so hard for each faculty to go along because they have the same goal or a sense of purpose towards the university ranking. Publication rewards, mostly in terms of financial bonuses/incentives, are also available for each published article in exchange for the time and efforts the faculty members spend in academic writing and publishing.

In contrast, if a university is just about to begin creating the publication culture, it will be very challenging to compete with others. Many universities are *under pressure*, and they have been trying to encourage their faculties to conduct research and publish articles. Some universities provide a lot of financial supports and incentives received in the first place to motivate their employees and even offer non-money awards, such as traveling overseas and other rewards. Most public universities usually have funding support from their governments. For example, in Indonesia, the faculty members who publish an article in a Q1 journal will get approximately 3,500 USD or more. Those who get their papers published in Q2-Q4 journals get less than that (Ministry of Research and Technology of the Republic of Indonesia, 2017). Yet, the outcomes are not that significant; some faculties are still stuck and stop writing and publishing. Financial or non-financial awards may not be served as a basis to support faculties to publish articles. This situation also differs in each department or faculty of a university. Some departments have no problem and enjoy extensive financial bonuses because their faculty members support each other to work and publish more articles, while some departments are still trying to publish articles.

In order to reach others' achievements, many universities, or many departments/faculties try to do other publishing strategies, such as conducting research and publication training, hiring scholars or researchers that focus on research and publication, collaborating with conferences in which submitted articles will be published in indexed proceedings or journals, and using publishing services. Tier-one universities often hire English language editors to assist faculty in their publications. These strategies may be effective in some ways. But the publication passion and culture may not exist among the faculty members.

In the worst scenarios, if those efforts do not bring good outcomes, many just publish articles in "predatory" or "poor quality" journals to reach a certain number of papers required by the university without further investigation as long as the article is published easily and quickly. Some may be aware but not even care, considering the "predatory" journal is defined differently (Grudniewicz et al., 2019). In the end, they are upset after they know that the journals that their articles get published are discontinued from Scopus or Web of Science. Based on data from Elsevier, Indonesian authors publishing in discontinued



journals happens across all subject areas, with a total of 27,082 documents during 2011-2020 (Chen, 2021).

### ***The Increased Number of Academic Journals***

No doubt, the number of academic journals is highly increased. Between August 2019 and August 2020, Scopus added 3.29 million new records (+4.15%). The current total number of records per August 2020 is 79.8 million (Aileen, 2020). In addition, there are more than 21,894 journals in the Web of Science Core Collection as of August 3, 2021 (Clarivate, 2021). This is a significant number of journals that influence the scientific movement worldwide. However, this number keeps increasing each year.

We notice some reasons why the number of journals or publishers increased. First, the number of journals in a specific field may be limited. Second, the Article Processing Charge (APC) for open access journals may be too high for students, around 1,000 to 4,000 USD or more. Although there are many free journals, they mostly use subscription models (no open access for the public), and the time from submission to publication may be too long (one to three years). Third, a business purpose. Some may see an opportunity to get more money from the APC of each article without considering the quality of the articles. It is noted that APC, in line with high quality and service (following publication ethics), is highly acceptable.

Additionally, in order to improve the visibility of the universities, many create their own journals, which also bring pros and cons. Positively, suppose a university has an academic journal. In that case, they can encourage and help their faculty members and students to publish in their journals, which may be considered one step of the academic publishing exercise. Many journals are also published in local languages. Once the articles are published, at least they have the visibilities in Google Scholar, respectively. It may have national and international impacts. In addition, to improve the quality of the journals, each country has its criteria. For example, in Indonesia, they have an accreditation body from the government to evaluate every year. However, each journal is competitively developing its quality for being indexed in reputable databases, such as Scopus, Web of Science, PubMed, Ovid, DOAJ, and others.

Negatively, the publication has an impact on the quality of higher education, especially for nursing education. To our knowledge, one university can create many journals, or each faculty develops one journal, and even in one faculty, each nursing program creates one. For instance, a pediatric nursing program creates a pediatric journal; a critical care nursing program makes a critical care nursing journal. It is a double burden for the faculty members. Instead of teaching, they are under pressure to spend their life conducting research, writing articles for promotion, and managing academic journals. There is a transition of the quality focus between teaching and publishing. This single-minded focus may cause faculty to neglect or be unable to

perform some other responsibilities (Rawat & Meena, 2014).

### ***Misconduct Among Nursing Students***

The negative impact of the notion of "publish or perish" can be seen from the cases of plagiarism, double publication, retraction, and other misconduct behaviors among students (Rawat & Meena, 2014; Gunawan, 2018). It is because many nursing students are now required to publish their works in international journals for graduation. At one point, it is an excellent step for publishing instead of only putting a thesis or a dissertation in a library. But, unfortunately, not all students could do it. The transformation of a 200-page thesis to be a 10-page article is not easy; it needs writing skills and passion. Many masters or doctoral nursing students are graduated late because of waiting for publication. In the majority of cases, they still need to pay tuition fees until the article is published online.

Besides, this is not the only case. Many diploma and bachelor nursing students, for example in Indonesia, are now demanded to go for publication too. This is another step of the misleading direction of the nursing institutions. Diploma nursing students mostly focus on clinical practice, while Bachelor nursing students may conduct mini-research for exercise, which most studies have low quality. Imagine if they are demanded to publish their works, the low-quality articles will be published and may negatively influence the credibility of the faculties and universities.

### ***Predatory Journals***

There is no golden standard to define a "predatory" journal. Although Jeffrey Beall was first coined the term "predatory" in 2010 (Beall, 2012) and has provided lists of publishers and journals in the past years; however, the way he evaluated the publishers and journals creates pros and cons because the decisions were not systematically explained (Chen, 2021). To our knowledge, it is somehow challenging to evaluate a publisher or a journal. A critical analysis is needed.

Understandably, a journal or a publisher may not perform excellent editorial management in the first year, as they are looking for a certain number of articles to meet the criteria for indexing. Many journals email and call prospective authors for submission and offer fast-track reviews (mostly only editorial review and single-blind review) or even fast-track publication, which is inappropriate in terms of publication ethics. Therefore, to be indexed in reputable databases, such as Scopus, Web of Science, PubMed, and DOAJ, one or two years minimum criteria of a journal publication history is required (Elsevier, n.d.), and their evaluation takes one to two years to complete.

Besides, although a journal has been indexed in those databases, it does not guarantee its quality. Many journals, after being included in Scopus and Web of Science or being a member of COPE (the Committee of Publication Ethics), their behaviors are very deviant. For example, as far as we know, a journal that usually publishes ten or 20 articles in

one issue is changed to publish 100 to 500 articles per issue, or from 60 to 1000 articles per year, with questionable peer review.

There are common red flags to identify “predatory” journals. Red flags are clues, not necessarily evidence, of predatory activity (Chen, 2021). The typical red flags include fake impact factors, incorrect addresses, misrepresentations of the editorial board, false claims of indexing or membership of associations and misleading, little or no information about editorial and peer review process, absent contact information, no details about article processing charges, and editors and editorial board members are often unverifiable (Grudniewicz et al., 2019; Chen, 2021). An unprofessional-looking web page – with irrelevant text is also considered a red flag (Grudniewicz et al., 2019; Chen, 2021). Repeated emails sending an invitation for submission, which the journal scopes are out of areas of authors’ expertise (Grudniewicz et al., 2019; Chen, 2021). Also, many journals publish articles faster within one to two weeks as long as the authors pay a certain amount of money or article processing charge. Therefore, we need to be careful with this kind of journal behavior and regularly check the discontinued Scopus lists to ensure that the journals are still included, and importantly, the contents of the published articles should be evaluated. “Predatory” journals are a global threat (Grudniewicz et al., 2019), and they keep growing and continually changing their names and journals (Chawla, 2021), as they have found ways to be indexed in reputable databases (Grudniewicz et al., 2019).

## Recommendations

Our position to honor the “publish or perish” culture is valid, but it should be done differently. In this section, we provide four recommendations considering the push to publications’ concerns and disadvantages.

First, there should be no conflict between teaching and publishing focus. The faculty members have a huge responsibility to teach nursing students in order to be competent registered nurses, especially in the bachelor and diploma nursing programs. Research and publication should not be their focus; instead, clinical skills should be a priority. For the master nursing program, each student only has two years of education (with four semesters); therefore, conducting promising research and publishing their work is challenging. It is because they spend one year on coursework and another year on the thesis. From our experience, mostly the students pass the proposal in the third and fourth semesters, but only a few complete it on time. Imagine if the university is required to publish their works in an international journal; indeed, they will spend at least one more year waiting for the publishing process. It is rare to find the Scopus or Web of Science journals publish an article within a month unless it is a “predatory” journal without peer review.

Besides, it is different from a doctoral program or PhD, in which its program is a research focus. Although some

institutions provide one year of course works and two years of research, the students can publish any parts of their research development, from concept development, literature review, instrument development/modification/translation, and main results of their study. However, not all students can do that; dealing with a qualifying exam and proposal defense makes them stressful enough. Another challenge is that a publication in a Scopus or Web of Science indexed journal is mandatory for graduation. Some universities have specific criteria of journals for publication to avoid “predatory” journals. The ranking of journals for students varies depending on their funding supports or scholarships. Some require Q1 journals, some only Scopus-indexed journals, regardless of the journal ranking. Also, some require one article, some need two or three articles. There is no universal standard for this issue, and it needs further exploration.

However, it is also challenging for the students to manage their time critically. Most of them are not possible to finish their study in three years, on average in four to six years. In addition, it leads to another issue, a tuition fee. Some universities still require the students to pay the fees (we are unable to provide the names of the universities, but it happens). However, in this case, the students should not pay any tuition fees because they are just waiting for the publication, and mostly they do not attend university and are back to work already.

Second, creating many journals in a university is not a necessity. We will not turn a university position into a publisher position; both have different purposes. Establishing many journals should not be a shortcut for increasing article production for a specific university or country. Our position on this point is not to forbid any universities to develop an academic journal, as long as they could balance between the quality of education (including the quality of teaching among faculty members) and the publication management. Many universities have the same human resources to teach, research, write and publish articles, as well as manage the journals. Adding other human resources to focus on journal publishing would be helpful without obstructing the teaching performance.

Third, publication ethics should be emphasized among faculty members and nursing students. To our knowledge, many nursing students, due to running with the time, often do double submission—submitting the same article at the same time to two or three journals (Gunawan, 2018). This unethical behavior may occur because they do not know, or they may be aware, but time is up. Unfortunately, this often results in a double publication, which leads to retraction and influences the university’s reputation and threat to be blacklisted in some journals.

In addition, many students or faculty members try to contact and negotiate with the editors about fast-track reviews and publications, resulting in immediate rejections. Instead of asking, the students could check the turn-around time (from submission to publication) average in the journal info or the published articles. Also, the publication ethics



related to plagiarism, self-citations, and other unethical behaviors should be highly emphasized.

Fourth, the notion of “publish or perish” should not be described as “under pressure,” but rather as culture, passion, encouragement, empowerment, motivation, and invitation of individuals to publish their works. However, it should be applied on many levels. For example, beginners or junior faculty members may need a collaborating team and a longer time to write or rework an article to be ready for publication. In addition, they may need some time to balance their works. In contrast, experts, or senior faculty members, may have some targets per year, either work individually or in a team. They also need to spare their time to empower the young generation to create the publication “passion” culture.

## Conclusion

The discussion related to publication benefits, concerns, and recommendations in this article are authentically based on the author's perspectives. However, the quality of nursing education should be highly prioritized. Teaching, research, and publication should align in harmony in order to reach the goals, either to be a world-class university or to produce competent and professional nurses. We should learn to trust every process; there is no shortcut by neglecting other responsibilities and focusing only on publishing. This applies to all elements, university level, faculty member, and students. We had better run slowly but with the proper process, rather than running faster but breaking all principles and goals. Lastly, we expect all nursing education worldwide to focus on good quality education to achieve sustainable development goals and ensure professional nurses are produced to serve communities.

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All authors declared that there is no conflict of interest.

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## Authors' Contributions

All authors contributed equally to this study.

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## References

- Aileen. (2020). Scopus Roadmap: What's coming up in 2020 & 2021? Retrieved from <https://blog.scopus.com/posts/scopus-roadmap-whats-coming-up-in-2020-2021>
- Beall, J. (2012). Predatory publishers are corrupting open access. *Nature*, 489(7415), 179. <https://doi.org/10.1038/489179a>
- Chawla, D. S. (2021). Hundreds of 'predatory' journals indexed on leading scholarly database. *Nature*. <https://doi.org/10.1038/d41586-021-00239-0>
- Chen, T. (2021). *Scopus talk on addressing the challenges of predatory publishing: Indonesia chapter*. Paper presented at the Researcher Academy on Campus.
- Clarivate. (2021). Web of Science platform: Web of Science: Summary of Coverage. Retrieved from <https://clarivate.libguides.com/webofscienceplatform/coverage>
- Coolidge, H. J. (1932). *Archibald Cary Coolidge*. Boston, Massachusetts, United States: Houghton Mifflin.
- Elsevier. (2021). University rankings: A closer look for research leaders. Retrieved from <https://www.elsevier.com/research-intelligence/university-rankings-guide>
- Elsevier. (n.d.). Pre-evaluation of Scopus submission. Retrieved from <https://www.readyforscopus.com>
- Grudniewicz, A., Moher, D., Cobey, K. D., Bryson, G. L., Cukier, S., Allen, K., . . . Berger, M. (2019). Predatory journals: no definition, no defence. *Nature*, 576, 210-212. <https://doi.org/10.1038/d41586-019-03759-y>
- Gunawan, J. (2018). Electronic theses and dissertations (ETDs) and publication ethics: A journal manager's perspective. *Belitung Nursing Journal*, 4(6), 528-529. <https://doi.org/10.33546/bnj.665>
- Gunn, A. (2020). Living in a digital world: the causes and the consequences. *Digital Society*. Retrieved from <https://medium.com/digital-society/living-in-a-digital-world-the-causes-and-the-consequences-4c5aca11b03a>
- Ministry of Research and Technology of the Republic of Indonesia. (2017). Article incentive. Retrieved from [https://simlitabmas.ristekbrin.go.id/insentif\\_artikel/](https://simlitabmas.ristekbrin.go.id/insentif_artikel/)
- Moosa, I. A. (2018). *Publish or perish: Perceived benefits versus unintended consequences*. Cheltenham, UK: Edward Elgar Publishing.
- Rawat, S., & Meena, S. (2014). Publish or perish: Where are we heading? *Journal of Research in Medical Sciences* 19(2), 87-89.

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# Coping style, anxiety level, organizational support, and work commitment of educators during the COVID-19 pandemic in the Philippines: A mixed-methods study

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## Abstract

**Background:** The emergence of the COVID-19 pandemic has distorted the education system, which greatly challenged educators in the pursuit of the continuity and quality of education. Commitment to perform duties and responsibilities are bounded in coping with the situation, emotional state, and the support from the organization.

**Objective:** To analyze and understand the presumed interrelationship of modeled variables, such as the coping style, anxiety level, organizational support, and work commitment of educators during the COVID-19 pandemic.

**Methods:** It is a mixed-methods study through an explanatory sequential approach. The path analysis technique was applied for quantitative with 116 educators as sample respondents guided by selection criteria. Digital immigrant educators with extreme responses were identified and asked permission for an interview. Open-access adapted questionnaires used were Simplified Coping Style Questionnaire (SCSQ), Beck Anxiety Inventory (BAI), Perceived Organizational Support (POS), Allen and Meyer's Organizational Commitment Questionnaire (OCQ). Data were processed and analyzed using SPSS and AMOS for descriptive and inferential statistics. A four-domain semi-structured questionnaire served as a guide in interviewing participants in the context of coping, anxiety, support, and work commitment. Thematic analysis was performed to generate themes.

**Results:** This study shown that educators often used coping style ( $1.87 \pm 0.84$ ; Mean  $\pm$  SD), have a low level of anxiety ( $0.58 \pm 0.69$ ; Mean  $\pm$  SD), have perceived uncertainty related to organizational support ( $4.03 \pm 1.37$ ; Mean  $\pm$  SD), and neither agree nor disagree in terms of their work commitment ( $3.02 \pm 0.93$ ; Mean  $\pm$  SD). The presumed model through path analysis has significantly predicted 28% plausibility ( $R^2 = 0.28$ ) with only organizational support that shown significant influence towards educators' work commitment ( $\beta = 0.22$ ). The themes that emerged are challenging adjustment, predestined situation, fear of getting infected, difficulty teaching effectively, technologically challenged, psychosocial assistance, uncertainty, and willingness to explore.

**Conclusion:** Educators during the COVID-19 pandemic were able to cope and control their anxiety through the test of time, seamless work commitment, and presence of support. This study can be considered a framework for situational analysis of nurse educators in the academic realm in times of emergency and disaster.

## Keywords

COVID-19; coping; anxiety; organizational support; work commitment; educators; nursing; Philippines

Unprecedented challenges have been very evident since the emergence of this world health crisis, the COVID-19 pandemic. Such unimaginable death toll has been rising

globally due to its rapid transmission, undiscovered treatment, and unavailable medical intervention and preventive measures such as vaccines (Flores & Swennen,

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2020). With this, the pandemic has been evident to be a stressful event for almost all people worldwide (Daniel, 2020; Mertens, Gerritsen, Duijndam, Salemin, & Engelhard, 2020). Affecting a large number of populations, this pandemic has even brought an evident change in many academic institutions, which includes a new mode of instruction and a new method of learning and teaching, and has somehow believed to impact and overwhelm both the educators and the students (Ali, 2020; Donohue & Miller, 2020; Talidong & Toquero, 2020).

Accordingly, 88% of workers reported experiencing moderate to extreme stress over the past 4 to 6 weeks related to the COVID-19 pandemic after its spread. Among those reporting stress, 62% noted losing at least one hour a day in productivity, and 32% lost at least two hours a day due to COVID-19-related stress (Labrague & de Los Santos, 2021; Reimers, Schleicher, Saavedra, & Tuominen, 2020). Researchers also highlighted that prescriptions filled per week for antidepressant, antianxiety, and anti-insomnia medications increased by 21% (Daniel, 2020). The rise in new cases may indicate a troubling association with COVID-19-related stress. Prior to the pandemic, the use of antianxiety and anti-insomnia medications were both on the decline from 2015 to 2019. However, in the time frame examined in the study, new prescriptions for antianxiety medications exhibited a 37.7% increase, stressing the vital need for therapeutic intervention (Hamouche, 2020).

This scenario has somehow brought the education system into a total drastic change. From normal face-to-face classes, the instruction inside the four corners of the room has turned into virtual learning, making all institutions challenged and unprepared (Daniel, 2020; Talidong & Toquero, 2020). Hence, in the field of academic institutions, the dilemma of educators to adhere to this new mode of instruction, amid the pandemic, at the same time imparting the quality education the learners deserve remains under progress and unanswered. This somehow will account for the fact that educators may face unprecedented anxieties and stresses during this drastic academic change, let alone the mental stress brought by the pandemic. Also, some educators, as part of an organization, may alter their willingness to serve, which can influence their individual coping in the situation and the level of support from the organization to sustain and commit to their work (Flores & Swennen, 2020; Yu et al., 2020). Unstable coping of educators may significantly affect their sound functioning and their atmosphere inside the organization, specifically their work commitment and the knowledge they impart (Adedoyin & Soykan, 2020; Flores & Swennen, 2020). Such is the reason why mental health should always be prioritized (Hamouche, 2020).

It is of important significance to establish the connection of nurse educators work commitment with the ways on how they cope and manage their anxiety with the support at hand from the organization during the pandemic that springboards strategic management in the continuity of promoting quality education and a step forward towards 4<sup>th</sup>

industrial revolution (Pangandaman, Ali, Lambayong, & Ergas, 2019a). This research has centered its inquiry on the commitment of educators at work that subjected to a state of disequilibrium during the COVID-19 pandemic in which, based on literature, could be influenced by the interplay of educators' anxiety, coping in the situation, and the support from the organization (Hamouche, 2020; Mertens et al., 2020; Talidong & Toquero, 2020). The lack of assessment of such a situation has led to the closure of schools in the Philippines (Reimers et al., 2020), which consequently contributed to the loss of jobs (Liu, Lithopoulos, Zhang, Garcia-Barrera, & Rhodes, 2021; Talidong & Toquero, 2020), devastated hopes and dreams of students (Adedoyin & Soykan, 2020; Ali, 2020), and the likelihood of a famine in the future. This study aimed to analyze and understand the presumed interrelationship of modeled variables such as the coping style, anxiety level, organizational support, and work commitment of educators during the COVID-19 pandemic. A mixed-methods through an explanatory sequential phase of path analysis of studied variables to establish its interconnectedness followed by interviews to clarify, understand and explain extreme situations experienced by educators. It can serve as a framework for situational analysis of nurse educators in the academic realm in times of emergency and disaster, such as the COVID-19 pandemic.

## Methods

### Study Design

This study utilized a mixed-methods design, particularly an explanatory sequential approach through a follow-up explanations model. According to Ivankova, Creswell, and Stick (2006), this approach focuses on specific quantitative results that require further explanation, such as extreme or unpredicted findings with highly statistical differences between or among groups or individuals. As such, a qualitative approach is needed to best help explain quantitative results. As applied in this study, the quantitative strand was primarily established through path analysis followed by the qualitative strand through interview. A path analysis approach was conducted to analyze the presumed interrelationship of modeled variables between coping style, anxiety level, organizational support, and work commitment of educators during the outbreak of COVID-19 in Mindanao, Philippines. The qualitative strand was instituted through interviews with the digital immigrant health educators since they are the most challenged in adopting flexible learning as technology-driven pedagogy. They have been interviewed to verify their responses on the research instrument and provided enrichment in understanding the studied phenomenon.

### Participants and Study Setting

#### *Quantitative Strand*

A non-health and health-related faculty members were selected from the 17 colleges of Mindanao State University (MSU), Philippines, through stratified simple random



sampling in which the yielded sample size ( $n = 116$ ) was calculated through the Raosoft online sample size calculator website upon inputting 165 total population under 95% confidence level and 0.05 margin of error (Omar, 2014). Respondents were selected based on criteria that (1) they have been working as faculty in the university for more than one academic year regardless of the employment status, (2) not holding middle managerial position or higher, and (3) have regular or at least 18 units teaching load. Exclusion criteria were faculty not willing to be part of the study and could not be able to reach.

#### *Qualitative Strand*

In the quantitative sample size ( $n = 116$ ) who participated in the quantitative strand, 31 digital immigrant educators (born before 1985) were identified. They have been chosen as participants for the interview in the qualitative strand, aside from being presumed as technologically challenged educators (Salazar-Márquez, 2017) was also to follow-up their extreme responses in the quantitative data. They were notified and invited to participate in the study through their institutional email and social media accounts like Facebook. Unfortunately, only five expressed interest and assured commitment for an interview due to myriad personal and professional responsibilities.

#### **Instruments**

There were five parts of the questionnaire in this study. The first to fourth part is an adapted self-scoring Likert-scale type questionnaire accessed from an open access journal with permission asked and granted from respective authors. The fifth is a researcher's made open-ended question format, which was validated by five experts in the field of nursing education. The default language used is English since the respondents/participants are professional educators and so not needed for vernacular language translation. Brief description of the questionnaire are as follows:

The Simplified Coping Style Questionnaire (SCSQ) is composed of 2 dimensions of coping: active (item 1 to 12) and passive (item 13 to 20), which response in each item is being measured through a four-point Likert scale (0 = never; 3 = very often). Active and passive coping is the usual response of an individual when stress has encountered. The higher the total SCSQ scores, the more possibility of adopting a relevant coping style. It has good validity and reliability measures (Cronbach's  $\alpha = 0.90$  and  $0.92$ ) (Yu et al., 2020).

Beck Anxiety Inventory (BAI) is used to a self-report level of anxiety through the calculated summed score of its 21 items. Response in each item is being measured through a four-point Likert scale (0 = not at all; 3 = severely – it bothered me a lot). Scores of the level of anxiety are categorized as follows: low anxiety = 0 to 21 score; moderate anxiety = 22 to 35 score; high anxiety = 36 and above. BAI questionnaire has proven good history of validity and reliability (Cronbach's  $\alpha = 0.92$ ), has been moderately correlated with the revised Hamilton Anxiety

Rating Scale (.51) and mildly correlated with the Hamilton Depression Rating Scale (0.25) (Beck, Epstein, Brown, & Steer, 1988).

Perceived Organizational Support (POS) questionnaire is based on the perception of employees towards the extent to which their organization puts value on their contribution and well-being. It has 36 items, and each is being measured through a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree). It has reported good validity and reliability and has been used by school teachers in Malaysia to assess the level of support being given to them (Rozdi, Othman, Ahmad, & Mohamed, 2017).

Then, Allen and Meyer's Organizational Commitment Questionnaire (OCQ) is comprised of 3 dimensions: affective (6 items), continuance (6 items), and normative (6 items). Each is measured through a 5-point Likert scale (0 = strongly disagree; 4 = strongly agree) with proven validity and reliability. It has been used to assess the commitment of academicians in a university (Wilson, Bakkabulindi, & Ssempebwa, 2016).

Lastly, the fifth part of the questionnaire is an open-ended type. It has statements in a declarative format that inquires on the respondent's phenomenon related to their coping, anxiety, support of the organization, and work commitment despite the COVID-19 pandemic. The content of the declarative statement items was selectively patterned from the adapted questionnaire (i.e., coping, anxiety, organizational support, and work commitment) with extreme responses needing clarification. The construction of the declarative statement items designed for interview has been subjected to face validity through consulting expert validators. They were five nursing educators with more than ten years of experience as an educator in an institution offering a nursing program, at least master's degree holder, and are active in instruction during COVID-19 pandemic. Validators unanimously agreed that all declarative statement items are valid to use for the interview.

#### **Data Collection**

##### *Quantitative Strand*

Researchers abided by the standard process and protocol of data gathering in the university as the locale of the study. The key officials, administrators, and middle managers have been communicated for permission and assistance to gather data. Respondents of the study have reached by the researchers through the institutional e-mail address in which an attached link for Google form version of the questionnaire. Social media, particularly Facebook Messenger and Instagram, were also used as a platform in reaching out to the respondents. A site visit has been done, and administered the questionnaire to available respondents who preferred the printed type of questionnaire. Standard health protocol has been observed throughout, such as wearing of facemask, face shield, social distancing, and handwashing. Quantitative data gathering happened from 7 September to 2 November 2020, in which the educators have already experienced at

least a semester of academic-related challenges in the midst of the COVID-19 pandemic.

#### Qualitative Strand

An interview has conducted in agreed available time online with the five digital immigrant faculty of the institution through the most preferred online platform of communication such as Zoom conferencing application, Google Meet, and Facebook Messenger video room. Prior to a formal interview, participants were formally asked for consent in recording the interview. It has been managed from 23 November 2020 to 26 February 2021.

#### Data Analysis

##### Quantitative Strand

Quantitative data gathered through Google form has been tabulated and coded in Microsoft Excel and extracted to SPSS version 21 application software to compute for the descriptive statistics (score, mean, and standard deviation). Then data from SPSS has been extended to AMOS software to perform path analysis using statistical regression technique to establish the predictive relationship of the variables and the path analysis model.

##### Qualitative Strand

Qualitative data then were manually transcribed and matched with the corresponding variable to perform thematic analysis. The processes included transcribing the recorded data, getting to know the data, producing initial codes, searching for themes, reviewing themes, and defining and labeling themes (Vaismoradi, Turunen, & Bondas, 2013). The researchers counter-checked together

closely and verified the truthfulness and accuracy of data through follow-up interviews with the participants.

#### Ethical Considerations

An ethics clearance has been secured from the College of Health Sciences Ethics Review Committee (CHS-REC) prior to data gathering and interview. Researchers explained the purpose of the study to the respondents and highlighted their rights, such as the right to withdraw or refuse to participate, the confidentiality of data or information gathered, and the possible risk and benefits. Detailed information of rights in the consent form was provided and signed by respondents.

#### Results

##### Quantitative Results

Based on Table 1, the educators as participants often used coping style ( $1.87 \pm 0.84$ ; Mean  $\pm$  SD) for both active ( $2.03 \pm 0.81$ ; Mean  $\pm$  SD) and passive ( $1.64 \pm 0.89$ ; Mean  $\pm$  SD) coping during COVID-19 pandemic. Based on the summed scores (12.18) in the inventory of anxiety, it is shown that educators had a low level of anxiety ( $0.58 \pm 0.69$ ; Mean  $\pm$  SD), and they had perceived uncertainty or undecided towards support from their organization or institution ( $4.03 \pm 1.37$ ; Mean  $\pm$  SD). In terms of educators' work commitment, they could neither agree nor disagree in terms of their affective work commitment ( $3.02 \pm 0.93$ ; Mean  $\pm$  SD), and they agreed on both continuance ( $3.47 \pm 1.09$ ; Mean  $\pm$  SD) and normative ( $3.71 \pm 0.392$ ; Mean  $\pm$  SD).

**Table 1** Descriptive statistics of the study variables

Variables	Score	Mean	SD	Interpretation
<b>Coping Style</b>				
Active Coping	24.41	2.03	0.81	Often
Passive Coping	13.13	1.64	0.89	Often
Overall:	37.54	1.87	0.84	Often
<b>Anxiety Level</b>	12.18	0.58	0.69	Low anxiety
<b>Organization Support</b>	14.32	4.03	1.37	Undecided
<b>Work Commitment</b>				
Affective	18.14	3.02	0.93	Neither Agree nor Disagree
Continuance	20.87	3.47	1.09	Agree
Normative	22.27	3.71	0.92	Agree
Overall:	61.28	3.40	0.98	Neither Agree nor Disagree

Table 2 shows that the variable coping style (CS) and organizational support (OS) had no significant influence on anxiety level (AL) ( $OS \rightarrow AL, \beta = 0.06$ ;  $OS \rightarrow AL, \beta = -0.09$ ). The variable coping style, organizational support, and anxiety level represented a weak predictive model ( $R^2 = 0.102$ ). On the other hand, the path analyzed towards Educators Work Commitment (EWC) as predicted by coping style, organization support, and anxiety level was a significant model ( $R^2 = 0.28$ ;  $F = 2.82^*$ ;  $B = 39.11^{**}$ ) which

predicted a 28% plausibility of the model ( $R^2 = 0.28$ ). Standardized data showed that coping style and anxiety level did not have a significant influence or effect on educators' work commitment ( $CS \rightarrow EWC, \beta = 0.13$ ;  $AL \rightarrow EWC, \beta = -0.08$ ). Only organizational support yielded a significant influence or effect on educators' work commitment ( $OS \rightarrow EWC, \beta = 0.22^*$ ). Figure 1 shows the final path analysis model of the study.

Table 2 Path analysis model

Path Model	R <sup>2</sup>	F	B	SE (B)	95% CI	$\beta$
IV: Path a & Path b						
DV: AL	0.10	0.50				
Path a = CS			0.06	0.11	[-0.15, 0.29]	0.06
Path b = OS			-0.06	0.07	[-0.20, 0.08]	-0.09
IV: Path c to Path e						
DV: EWC	0.28	2.82*	39.11**			
Path c = CS			0.11	0.08	[-0.05, 0.27]	0.13
Path d = OS			0.11	0.05	[0.01, 0.22]	0.22*
Path e = AL			0.06	0.07	[-0.08, 0.21]	0.08

Note:  $n=116$ . B = unstandardized beta; SE = standard error; CI = confidence interval;  $\beta$  = standardized data; DV = dependent variable; IV = independent variable; CS = Coping Style; OS = Organizational Support; AL = Anxiety Level; EWC = Educators Work Commitment; \* $p$ -value = 0.05; \*\* $p$ -value = 0.01

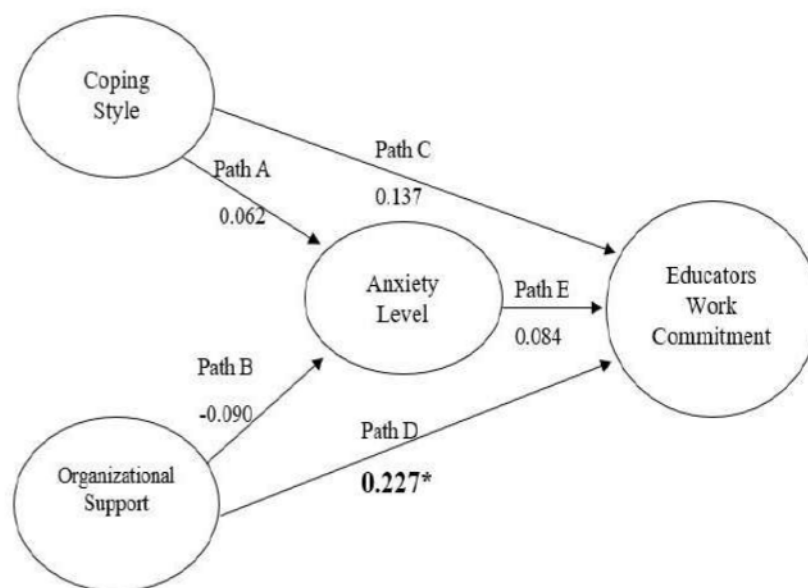


Figure 1 Path analysis model

### Qualitative Results

An interview with digital immigrant educators as the most challenged in the sudden shifts of pedagogy due to the emergence of COVID-19 to gain a deeper understanding of their situation in the context of coping, anxiety, organizational support, and work commitment. Each dimension revealed two major themes. Challenging adjustment and predestined situation for coping; fear of getting infected and difficulty in teaching effectively in the dimension of anxiety; technologically challenged and psychosocial assistance in the context of organizational support; and uncertainty and willingness to explore for a work commitment.

### Challenging Adjustment

Participants as an educator expressed challenges in adjusting to cope with the emergence of COVID-19. Part of their coping mechanism is to gradually adjust to the challenges they had experienced due to the necessary and sudden shift of pedagogy. In addition, participants stated that they need to adjust to the challenges of new normal life

and at work to fulfill their responsibilities. The statement below described the experiences of the participants:

- "It is a sudden encounter, but I believe this is a big challenge for everyone" (p1)
- "It is a new life now that we have to dwell and adjust responsively to fulfill our responsibilities" (p5)
- "We should really find ways to have an adjustment" (p1)
- "As an educator, it is important to show to our students that we are coping in the new normal situation. It is challenging, and so we have to be a model to our students" (p3)
- "I am anxious about the unknown to come in thinking that it would get difficult to teach" (p2)

Other participants stated that they have difficulty adjusting because of the challenges in flexible learning as pedagogy in the new normal. There were institutional policies and requirements that they need to comply as an educator. These were described in statements below:

- "The institution prescribed flexible learning as a strategy in the new normal; It is challenging because I am not used to technology in teaching" (p2)

- "I have always been watching a video in YouTube about flexible learning to deal with the complexities of teaching in this new normal" (p4)
- "I asked to be mentored by my millennial daughter to gradually learn with the skills required in teaching in this new normal" (p5)

### **Predestined Situation**

The COVID-19 pandemic situation has been viewed by educators as predestined. Therefore, they cope with the situation by rationalizing that it could not happen without the will of the above almighty. Participants stated that this perception has helped them cope with and adjust to the situation to perform daily functions and their faith as their strength.

- "We need that to function routinely every day. And you know what, it is really a big help having those thoughts like this is predestined (Qadr) which we cannot take control of so we will be the one to adjust" (p1)
- "The pandemic COVID-19 is a given challenge that everyone has to endure with faith" (p4)
- "Our prayer is our hope that everything will be going back to normal" (p3)
- "It's not that I do not engage in coping, but I rarely think situations like this should shake me. Yes, this is a sudden encounter, but I believe this is a big challenge for everyone that we should not weaken ourselves, right?" (p1)

### **Fear of Getting Infected**

The educators were anxious about the debut of COVID-19 in the country that they are afraid of getting infected. They are scared of going to the institution as the facilities, and the means of transportation may put them at risk of getting infected.

- "What if I get infected? Maybe I won't be able to bear it" (p2)
- "Because if you'll look at it, it's like it is very hard to stop its spread, right? It is really terrifying to be infected" (p3)
- "My fear in coming to the institution to attend an academic meeting is the thought that some could possibly and unknowingly have contact with the facility by an infected" (p5)
- "I would definitely avail vaccine to decrease my fear of possibly acquiring the virus from others" (p4)

The participants also expressed their anxiety in commuting from home to work as they are possibly exposed to and infected by a virus carrier. In addition, they expressed concern about the type of vehicle they avail in commuting as the risk of getting infected could be highly possible in a closed air-conditioned vehicle.

- "As an educator, I need to attend meetings in the university and comply in the skeleton scheduling assigned, so I have to commute through an open-space vehicle like jeepneys" (p3)
- "I am afraid to ride in a van vehicle going to school as the chance of getting infected is high because it is a close-spaced airconditioned vehicle" (p1)
- "I am in favor of limiting the number of passengers in our college vehicle to minimize the risk" (p5)

- "I have personal handy alcohol to religiously spray before and after entering in a car, the school, and at home as I am afraid to be infected as well as others especially my family"

### **Difficulty in Teaching Effectively**

Educators amidst the COVID-19 pandemic have expressed their manageable level of anxiety in the sudden shift of pedagogy. They are anxious at the beginning of the pandemic due to uncertainty in the direction of the education system in the country. But, with the passing of time and the love for teaching, digital immigrant educators have earned some confidence and competence in flexible learning though they admitted that it had been a difficult time for them.

- "To be honest, when it was the first week of the lockdown, the first thing I thought of was, how can I teach effectively for now?" (p3)
- "Synchronous classes as a flexible type of learning is very easy to think of but difficult to actualize because of constraint in the internet connection and the technology itself" (p2)
- "It has been difficult to teach in flexible learning because of eye strain, back pain and the unfamiliar features of gadgets in smartphone and laptop" (p4)
- "It's very hard to teach virtually than in face-to-face. I am afraid of being ineffective in the new pedagogy" (p1)

The participants expressed that they love their work as educators and willing to learn to overcome difficulties in teaching in the new normal. They had experienced difficulty in using various online educational platforms such as Zoom, Google Meet, Google Classroom, and social media like Facebook and Messenger.

- "It difficult to teach in this new normal, but I am trying to learn how as I love teaching" (p3)
- "There was a time that I was video conferencing in my lecture, and I realized that there were no virtual students present because I was disconnected" (p1)
- "I can't start my virtual class without the assistance of my millennial daughter to help me set up my computer and my presentation" (p5)
- "My experience delivering successfully in online class has been dependent on someone to assist me, but I tried to learn although difficult at first. Now, I can operate basic features of the educational platform such as Zoom, Google Meet, Google Classroom" (p2)
- "I have no social media account before, so I made one in Facebook and Messenger to facilitate my online classes. It has been difficult because I'm not used to it" (p4)

### **Technologically Challenged**

Educators expressed their anxiety through having a fear of getting infected, yet they think of their responsibilities at work on how they can teach effectively despite difficulties. It relates to the challenging method of instruction as a technologically driven process. Educators who belong to the digital immigrant group have had to learn a new language and practice when it comes to digital technologies in which support from the institution to this matter has



relevance in the success of educators in the delivery of class instruction and so the students.

- *"It is very challenging to teach. I appreciate the university administration in promoting technological support to the faculty through webinars and training"* (p2)
- *"The internet speed in the University must be upgraded. It is also challenging to look for strong internet reception somewhere"* (p3)
- *"I have bought laptop and gadgets for my classes. Yet, I don't know how to operate unless someone assists me"* (p4)
- *"We have been required to attend training simulations on flexible learning. The experience was challenging but with more opportunities to learn about technology"* (p5)
- *"I am confused in some basic functions of computer like keyboard shortcuts and text instructions"* (P1)

They also share that they mostly have challenging experiences using computers and their smartphones in terms of internet connectivity. They have been requesting assistance in registering to internet promos, accessing and inputting Wi-Fi passwords, and finding a place with a reliable internet connection.

- *"Through staying at schools' office was the only time to have reliable internet connection for me to have my online classes"* (p5)
- *"I conducted my classes sometimes in a coffee shop to access because of internet. It was a tough situation for me to have that set-up sometimes"* (p3)
- *"I have been always asking assistance from my millennial co-educators in availing internet promos"* (p2)
- *"The password needed to access a Wi-Fi or hotspot internet is confusing"* (p1)

### **Psychosocial Assistance**

The sudden shift of pedagogy being implemented in the new normal and the needed adjustment because of challenges in the quarantine measures being imposed has been mentally, socially, physically, and financially taxing. The situation of educators loaded with academic responsibilities seems to be mentally draining that needed psychosocial assistance. The statements presented below are the manifestation of the struggles of digital immigrant educators.

- *"Occasional face-to-face academic meetings is socially beneficial and sometimes mentally refreshing"* (p4)
- *"The 1-week academic break allowed by the University paved mental break to us educators"* (p3)
- *"I admired a very responsive academic administration in responding to our queries related to academic concerns"* (p5)
- *"What is missing in this new normal is the socialization with co-workers and students. Virtual interactions can be boring, especially when you have a poor internet connection. I hope to have limited face-to-face classes or back to normal the soonest"* (p1)

The educators also wished to have an outlet in the academe or organization to channel their psychosocial

concerns. It seems to be meaningful for them to have something that they could socially and mentally rely on.

- *"I need sometimes to talk to discuss about academic concerns"* (p3)
- *"I'd love to come in the institution to personally share my struggles whom an educator can relate to"* (p1)
- *"The kind of teaching amidst pandemic is so mentally draining. I love the kind of socialization in teaching"* (p5)

### **Feeling of Uncertainty**

Educators have shared a feeling of uncertainty on their commitment. It is because of the challenging teaching process in the new normal and the perception of the support that they need to would outstand the unknown duration of the COVID-19 pandemic.

- *"I don't know if I could still work and teach in this new normal"* (p1)
- *"Pandemic may last longer, and I am not sure with my commitment because of the need to balance between competence and support"* (p4)
- *"I am certain with my work commitment before the pandemic, but now, I could not say"* (p3)
- *"There could be instances wherein you will be just wanting to stop, but of course, that isn't a permanent decision. Just human nature to feel hopeless. So that's it, I can't be hundred percent sure for now if I can say whether or not I am committed (in my organization)"* (p5)
- *"It's not appropriate to discuss work commitment"* (p3)
- *"All of a sudden, academic realm, the process...we need more time and so to think of commitment"* (p1)
- *"Commitment is a big word. Since I was just hired around 2018, it would be too early for me to conclude to myself whether or not I am committed to staying. But part of me is actually willing to find that commitment because, from the very first place, I wanted to enter this university very badly"* (p5)

### **Willingness to Explore**

Despite the uncertainty, educators share their feelings and willingness to explore and learn new strategies to adopt the new normal in the academic realm. Participants stated that they have been attending online webinars, and with the assistance, they are willing to always watch videos at YouTube and do research at Google to learn more ideas and to enrich the visual content of their lecture presentation online.

- *"Always eager to attend webinars because you would learn a lot and explore"* (p4)
- *"My partner directs me to the right content to watch in YouTube for instructional strategies...I like the process"* (4)
- *"In Google, you would explore everything...just type the word/s"* (p2)
- *"Sometimes I spent about 4 to 5 hours screen time. More to research for work and I am always into it now"* (p1)
- *"You can search more pictures in google to enrich visuals of lecture presentation online"* (p3)
- *"I have to explore in this kind of work today. I am committed to doing it"* (p1)

## Discussion

This study aimed to analyze the presumed model, particularly the interrelationship between coping style, organizational support, anxiety level, and work commitment of educators in a university during the COVID-19 pandemic. It has shown that educators were able to apply both active and passive coping styles during the pandemic as the provision of the situation becomes part of their daily routine that made them find ways to adjust. The participants expressed that the adjustment period was challenging and presumed it was predestined as part of their coping. They described a positive remark in accepting the reality and be strong enough to adjust to such situations to function well. These imply that it is the responsibility of an individual to deal with things that can affect one's emotions, and it depends on a person to use certain coping styles. Educators' acknowledgment of the global crisis, challenges, and understanding of the essential role and responsibilities in the trying times of pandemic are able to adjust and cope (Flores & Swennen, 2020).

Educators have shared a low level of anxiety in the pandemic situation, but they have reservations over the fear of possibly getting infected. Also, with the sudden shift of pedagogy as responsive to the situation, the educators have expressed their concern in difficulty to be an effective teacher in the new normal. However, the concept of possible terrific situations, fear of dying, a state of nervousness, and anxiety-related feelings do not bother them. Educators acknowledged that fear is normal during this pandemic but at a controllable condition. Though fear of COVID-19 is typical in the pandemic (Mertens et al., 2020), they expressed that there is nothing to be afraid of as long as health protocols are strictly practiced. It enjoins a study that Filipino teachers or educators adhere to health protocol requirements and has found purposeful activities in dealing with anxiety, such as spending time on social media and newly discovered hobbies during quarantine (Talidong & Toquero, 2020). However, they expressed important concerns on the effect of the pandemic in society and the directions of the system of education in the future, which also mentioned in other studies (Daniel, 2020; Flores & Swennen, 2020; Talidong & Toquero, 2020).

Moreover, educators have a different perception of the existing organizational support during the pandemic. Some claimed that providing a complete monthly salary is invaluable support that helps them survive and overcome challenges in the trying times of the pandemic. During this time being an educator, the digital immigrants have expressed support for their challenging situation in dealing with technology and psychosocial assistance. Accordingly, there is no playbook or appropriate guide in contextualizing support to educators in the quintessential adaptive and transformative challenge in the COVID-19 pandemic (Reimers et al., 2020). Institutions adapt and flex their resources based on the existing gaps and problems, which may be perceived as deficient or unsatisfactory. This can be attributed to the shifting of methods of instruction to

online or distance learning, which competency differs among educators, especially that changing landscape of education is technologically driven along with innovative classroom pedagogy (Pangandaman et al., 2019b). Accordingly, digital immigrants reported various challenges than digital natives because the mode of navigation in pedagogy has suddenly changed that made them difficult to adapt due to time constraints (Adedoyin & Soykan, 2020; Ali, 2020).

With the unprecedented challenges of the COVID-19 pandemic in the system of education, educators' work commitment has been shaken and put to the test of time. Educators had expressed uncertainty in sharing the insights about their work commitment and so willing to explore to find their confidence and purpose. However, there are times that they feel a sense of hopelessness and yet finding passion along the way. This could be related to the various aspect of challenges met by educators in the stringent response of the government to contain and prevent the spread of the virus during its debut in the country. The period of adjustment and adaptation in the situation could then make a renewal of commitment based on the proactive response of the institutional administrators or leaders (Donohue & Miller, 2020).

Based on the analysis of the variables of educators coping style, anxiety level, and organizational support during pandemic has found no significant relationship with each other nor coping style and organizational support can influence anxiety level of educators. It is consistent in another study revealed that coping, anxiety, and support have no clearly established significant relationship or associations between such variables (Mahmoud, 2011). However, in the model of the variables analyzed, organizational support has been found to significantly influence the work commitment of educators. It relates to a study that commitment is significantly influenced by their insights of organizational support they receive directly from the organization they work (Rahaman, 2012). It is also enjoined by studies that adequate organizational support, or the degree to which the organization recognizes employees and values their well-being, has been related to high levels of job performance and commitment, both of which are important when dealing with a disease outbreak (Labrague & De los Santos, 2020, 2021), as much as the pandemic is concerned.

This study has ramifications for nursing education and practice. Educators' situation during the trying times of pandemic COVID-19 could be partially understood through the lens of their coping, anxiety, and support that may define directions of their work commitment and the quality of education. The study's analyzed concept could also serve as a springboard for academic strategic planning and educator preparation for education 4.0, or the fourth industrial revolution (Pangandaman et al., 2019a). As a result, quality education is promoted for students to experience, which may impact their practice. It presumes to have future implications for the quality of nursing practice as a result of changing circumstances.

Part of the study's limitation is the number of participants in the qualitative strand due to the challenging set-up of the online interview as expected from digital immigrant participants. Also, the analyzed path of the study has centered on participants coping styles, organizational support, and anxiety level as predictors of educators' work commitment. There could be outlier variables that are best predictors of the variable being predicted, which are interesting to be undertaken for further studies. As part of the weakness of the study is the presumed matching of data gathered in the qualitative with the quantitative strand. The variables examined through path analysis as statistically measured have a weak in-depth translation in the qualitative findings, which could be a focus for further studies.

## Conclusion

The emergence of the COVID-19 pandemic has greatly challenged educators in the pursuit of the continuity of education. They are able to cope and control their anxiety with the test of time, which found then to have no significant influence on their work commitment. The perceived variations in the organizational support have significantly influenced the latter, which is also similarly highlighted in other studies. Organizational or institutional support is important to renew and sustain the commitment of educators to overcome the challenges and adapt to the situation in promoting and possibly providing quality education.

## Declaration of Conflicting Interest

The authors have no conflict of interest to declare.

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## Authors' Contributions

NA and HP conceptualized the article, carted and reviewed literature, and decided on the methods. NA conducted the data gathering and interview of participants and analyzed the data with HP. Several revisions were made by the authors and agreed on its final version and for publication.

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## Data Availability Statement

All data collected and analyzed during the conduct of this study are included in this published article. However, for the purpose of data privacy, data or information are not publicly accessible or available to avoid compromise to the research participants.

## References

- Adedoyin, Olasile Babatunde, & Soykan, Emrah. (2020). Covid-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments*, 1-13. <https://doi.org/10.1080/10494820.2020.1813180>
- Ali, Wahab. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *Higher Education Studies*, 10(3), 16-25. <https://doi.org/10.5539/hes.v10n3p16>
- Beck, Aaron T., Epstein, Norman, Brown, Gary, & Steer, Robert A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, 56(6), 893. <https://doi.org/10.1037/0022-006X.56.6.893>
- Daniel, John. (2020). Education and the COVID-19 pandemic. *Prospects*, 49(1), 91-96. <https://doi.org/10.1007/s1125-020-09464-3>
- Donohue, Julie M., & Miller, Elizabeth. (2020). COVID-19 and school closures. *JAMA*, 324(9), 845-847. <https://doi.org/10.1001/jama.2020.13092>
- Flores, Maria Assunção, & Swennen, Anja. (2020). The COVID-19 pandemic and its effects on teacher education. *European Journal of Teacher Education*, 43(4), 453-456. <https://doi.org/10.1080/02619768.2020.1824253>
- Hamouche, Salima. (2020). COVID-19 and employees' mental health: Stressors, moderators and agenda for organizational actions. *Emerald Open Research*, 2, 15. <https://doi.org/10.35241/emeraldopenres.13550.1>
- Ivankova, Nataliya V., Creswell, John W., & Stick, Sheldon L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, 18(1), 3-20. <https://doi.org/10.1177/1525822X05282260>
- Labrague, Leodoro J., & De los Santos, Janet Alexis A. (2020). COVID-19 anxiety among front-line nurses: Predictive role of organisational support, personal resilience and social support. *Journal of Nursing Management*, 28(7), 1653-1661. <https://doi.org/10.1111/jonm.13121>
- Labrague, Leodoro J., & de Los Santos, Janet Alexis A. (2021). Fear of Covid-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *Journal of Nursing Management*, 29(3), 395-403. <https://doi.org/10.1111/jonm.13168>
- Liu, Sam, Lithopoulos, Alexander, Zhang, Chun-Qing, Garcia-Barrera, Mauricio A., & Rhodes, Ryan E. (2021). Personality and perceived stress during COVID-19 pandemic: Testing the mediating role of perceived threat and efficacy. *Personality and Individual Differences*, 168, 110351. <https://doi.org/10.1016/j.paid.2020.110351>
- Mahmoud, Jihan Saber Raja. (2011). *The relationship of anxiety, coping, thinking style, life satisfaction, social support, and selected demographics among young adult college students*. (Dissertation), University of Kentucky, Lexington, Kentucky.
- Mertens, Gaëtan, Gerritsen, Lotte, Duijndam, Stefanie, Saleminck, Elske, & Engelhard, Iris M. (2020). Fear of the coronavirus



- (COVID-19): Predictors in an online study conducted in March 2020. *Journal of Anxiety Disorders*, 74, 102258. <https://doi.org/10.1016/j.janxdis.2020.102258>
- Omair, Aamir. (2014). Sample size estimation and sampling techniques for selecting a representative sample. *Journal of Health Specialties*, 2(4), 142. <https://doi.org/10.4103/1658-600x.142783>
- Pangandaman, Hamdoni K., Ali, Nassefah D., Lambayong, Joy Hope C., & Ergas, Mona Liza G. (2019a). Philippine higher education vis-à-vis education 4.0: A scoping review. *International Journal of Advanced Research and Publications*, 3(3), 65-69.
- Pangandaman, Hamdoni K., Boloron, Ritchel P., Lambayong, Joy Hope C., Ergas, Mona Liza G., Raki-in, Romanoff M., Mai-Alauya, Sittie Ainah M., & Mukattil, N. P. (2019b). Innovative classroom pedagogy In nursing education: A systematic review. *International Journal of Health Medicine and Current Research*, 4(4), 1543-1549. <https://doi.org/10.22301/IJHMC.R.2528-3189.1543>
- Rahaman, H. S. (2012). Organizational commitment, perceived organizational support, and job satisfaction among school teachers: Comparing public and private sectors in Bangladesh. *South Asian Journal of Management*, 19(3), 7-17.
- Reimers, Fernando, Schleicher, Andreas, Saavedra, Jaime, & Tuominen, Saku. (2020). *Supporting the continuation of teaching and learning during the COVID-19 pandemic*. Retrieved from [https://globaled.gse.harvard.edu/files/geii/files/supporting\\_the\\_continuation\\_of\\_teaching.pdf](https://globaled.gse.harvard.edu/files/geii/files/supporting_the_continuation_of_teaching.pdf)
- Rozdi, Zuraimi Md, Othman, Salmiah, Ahmad, Che Nidzam Che, & Mohamed, Zulkifley. (2017). Translation, validity and reliability of perceived organizational support. *International Journal of Academic Research in Business and Social Sciences*, 7(10), 2222-6990. <https://doi.org/10.6007/ijarbss/v7-i10/3390>
- Salazar-Márquez, Roberto. (2017). Digital immigrants in distance education. *International Review of Research in Open and Distributed Learning: IRRODL*, 18(6), 231-242. <https://doi.org/10.19173/irrodl.v18i6.2967>
- Talidong, Karen Joy B., & Toquero, Cathy Mae D. (2020). Philippine teachers' practices to deal with anxiety amid COVID-19. *Journal of Loss and Trauma*, 25(6-7), 573-579. <https://doi.org/10.1080/15325024.2020.1759225>
- Vaismoradi, Mojtaba, Turunen, Hannele, & Bondas, Terese. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, 15(3), 398-405. <https://doi.org/10.1111/nhs.12048>
- Wilson, Mugizi, Bakkabulindi, Fred, & Ssempebwa, Jude. (2016). Validity and reliability of Allen and Meyer's (1990) measure of employee commitment in the context of academic staff in Universities in Uganda. *Journal of Sociology and Education in Africa*, 14(1), 1-9.
- Yu, Hua, Li, Mingli, Li, Zhixiong, Xiang, Weiyi, Yuan, Yiwu, Liu, Yaya, . . . Xiong, Zhenzhen. (2020). Coping style, social support and psychological distress in the general Chinese population in the early stages of the COVID-19 epidemic. *BMC Psychiatry*, 20(1), 1-11. <https://doi.org/10.1186/s12888-020-02826-3>

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# Citizens' health practices during the COVID -19 pandemic in Indonesia: Applying the health belief model

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## Abstract

**Background:** Understanding the health practice of Indonesian residents and its related factors during the COVID-19 pandemic is crucial, but such association necessitates clarity.

**Objective:** To examine the health practices of the Indonesian citizens and their correlations with knowledge and health belief model (perceived susceptibility, barriers, benefits, severity, and self-efficacy) during the COVID-19 pandemic.

**Methods:** A community-based online cross-sectional design was employed. The study was conducted from 10 July to 30 August 2020 among 552 citizens selected using convenience sampling. Sociodemographic characteristics, knowledge, health belief model, and health practices, including wearing a mask, social distancing, and washing hands, were measured using validated questionnaires. Adjusted odds ratios (AORs) and logistic regression were employed for data analysis.

**Results:** The adjusted AORs (95% CIs) of a good level of health practices—wearing the mask, social distancing, and washing hands—were 3.24 (1.52~6.89), 2.54 (1.47~4.39), and 2.11 (1.19~3.75), respectively, in citizens with the high level of knowledge. Interestingly, respondents with positively perceived susceptibility exhibited significantly good practice in wearing the mask (4.91; 2.34~10.31), social distancing (1.95; 1.08~3.52), and washing hands (3.99; 2.26~7.05) compared to those with negatively perceived susceptibility. In addition, perceived barriers, benefits, severity, and self-efficacy also exhibited a significantly good all variables of health practice regarding COVID-19 pandemic after adjusting for confounding variables.

**Conclusion:** Citizens with high levels of knowledge and positive levels of the health belief model had good practice of wearing masks, social distancing, and washing hands. The outcomes of this survey could encourage health professionals, including nurses, through management practices of nursing intervention based on the health belief model during the pandemic.

## Keywords

COVID-19; health belief model; health knowledge; Indonesia; nursing; practice

Coronavirus disease 2019 (COVID-19) has emerged as one of the deadly pandemics in recent history (Grech, 2020; Huang et al., 2020). According to the World Health

Organization, a total of 163,312,429 infected with 3,386,825 fatalities by COVID-19 were confirmed globally as of 18 May 2021. In particular, this vulnerability has also

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emerged in Indonesia reached 1,744,045 with a case fatality of 2.77%, World Health Organization, 2020). Particularly, 215,059 people were infected in East Java with 11,707 fatalities and obtained the 4<sup>th</sup> rank in Indonesia (Gugus Tugas Percepatan Penanganan COVID-19, 2021). This situation is in line with the previous literature established that inadequate health practices among Indonesian citizens (Rias et al., 2020) or low public behaviors of citizens regarding the COVID-19 pandemic (Jose et al., 2021), complicating efforts to prevent the spread of this pandemic. Consequently, the containment of the COVID-19 pandemic must continue to rely on personal health behaviors control to decline the exposure (Bechard et al., 2021; Jose et al., 2021).

Preventing and or reducing the spread of infection is accomplished by practical personal care measures, which involved washing hands, wearing a mask, and required standard social distancing that could mitigate the COVID-19 transmission (Rias et al., 2020; Bechard et al., 2021; Muslih et al., 2021). Notably, these activities should be encouraged and viewed as primary preventative measures targeting COVID-19 immediately to protect its transmission (Muslih et al., 2021). Analysis of an environmental protection study in several countries such as South Korea, China, Italy, Iran, and the U.S. reported that over 50 million incidents were prevented by implementing good health practices (Hsiang et al., 2020). A previous study conducted in Indonesia only explored the health practices regarding the COVID-19 pandemic with sociodemographic, knowledge, and attitude variables without involving other important health-related factors (Muslih et al., 2021). Furthermore, no empirical survey has explored the health practices involved wearing masks, social distancing, and washing hands with specific determinant health factors during the COVID-19 pandemic among Indonesian citizens. Thus, empirical research of the citizens' health practices regarding the COVID -19 pandemic in Indonesia should immediately be explored.

Knowledge is critical for modifying health practices to assess public awareness in recognizing gaps and recognizing prevention efforts, particularly during a pandemic (Abdulkareem et al., 2020). A previous study in China revealed that a higher score of COVID-19 knowledge score was positively significant with good practice-not going to a crowded place and wearing the mask (Zhong et al., 2020). Additionally, even though the majority of the Indian citizen demonstrated adequate knowledge and appropriate health practices regarding the COVID-19 pandemic; however, they still have an issue with base myths and evidence. Remarkably, this issue suggested that citizens still need to assess and improve their knowledge (Narayana et al., 2020). Indonesia remains currently suffering from the COVID-19 transmission and the continuing battle against this pandemic (Rias et al., 2020; World Health Organization, 2020; Muslih et al., 2021), an association between knowledge concerning COVID-19 transmission and also the level of COVID-19-linked health practices need to be conducted.

The health belief model (HBM) is one of the theoretical guidelines for healthy lifestyle practices in epidemiology and behavioral study. Moreover, the HBM is common and widely accepted due to its high prediction accuracy (Rosenstock et al., 1988; Barakat & Kasemy, 2020). The HBM has a strong correlation with how citizens assess the challenges and difficulties they could encounter when adopting new practices related to health (Barakat & Kasemy, 2020). In a previous study conducted in India, behavioral change was examined in 638 (93.8%) of the respondents, and variables in the HBM demonstrated a positive correlation with behavioral change (Jose et al., 2021). As the health practices of the Indonesian citizens, particularly in East Java, are still uncomprehensive explored. At the same time, the HBM constructs may explain behavior in response to the COVID-19 pandemic and the involvement of HBM constructs.

A previous study analyzed health practices, which focused on assuming that having adequate knowledge and positive HBM alters one's behavior (Barakat & Kasemy, 2020; Jose et al., 2021). These conditions will assist in determining what individuals currently do and what they should do to regulate their behaviors successfully (Barakat & Kasemy, 2020; Jose et al., 2021). Notably, it may represent an effective nursing method for enhancing behavior management by using HBM procedures for optimal practices regarding the COVID-19 pandemic. Therefore, our research aimed to determine the relationship between health practices (wearing a mask, social distancing, and handwashing) and their factors during the COVID-19 pandemic among Indonesian citizens.

## Methods

### Study Design

Primary information was obtained from members of the citizens in East Java, Indonesia, using online a community-based with cross-sectional study design.

### Setting and Sample

Participants were selected from East Java, Indonesia, including rural and urban areas. The requirement for inclusion in the Google form were as follows: aged 17 until 65, able to communicate in Bahasa Indonesia, and willing to complete the informed consent form. We received 527 responses via the Google form. Therefore, a total of 522 citizens in East Java were included in the final survey. To estimated sample size, we used ClinCal application-online with incidents of not useful perceived benefit 42.9% and useful perceived benefit 57.1 (Shewasinad Yehualashet et al., 2021), and an Alpha level of .05, and a power value of .85, which calculated a sample size of 422 participants. Considering an estimated dropout rate of 25%, we increased our total sample size to 527 participants, but our sample was excluded five participants which total participant in our study was 522 citizens. The five participants were omitted because they did not agree to click the box consent form.



## Instruments

The survey of self-administered evaluations was developed based on prior investigations, which explored determining factors for health practices toward COVID-19 transmission (Rias et al., 2020; Muslih et al., 2021). There were components of a sociodemographic questionnaire that involved personal profile and characteristics of gender, age, marital status, occupation, educational level, income, and urbanicity.

Three items attributable to behaviors were used to determine health practices along with the Zhong et al.'s items (Zhong et al., 2020) and already back-translation into Bahasa (Rias et al., 2020). The content validity was determined by three experts in nursing who asked participants whether they had visited crowded places or use a face mask while outside their home in the week preceding the survey. We also assessed whether participants reported washing their hands after returning home or coming into contact with another person (yes = 1; and no = 0).

The respondents' knowledge related to COVID-19 tested levels of knowledge involved data information regarding clinical presentations, transmission paths, and COVID-19 prevention and control consisted of 12-item. Response choices were "true; wrong; and do not know"; a correct response was worth one point, while an incorrect or "do not know" response was worth zero points (Zhong et al., 2020). The total possible knowledge score was 0–12; high level (score  $\geq 10$ ) and low level (score  $< 9$ ), which indicated that a higher score suggests greater familiarity with knowledge of COVID-19. The Indonesian version of the knowledge questionnaire had good internal consistency, with Cronbach's alpha value for the KAP-COVID-19 analysis was 0.71 (Rias et al., 2020). Furthermore, Cronbach's alpha coefficient was 0.79 for our study.

The constructs for the HBM were a five-Likert scale item (one being extremely dissatisfied and five being extremely satisfied), and during the study, strongly dissatisfied and dissatisfied were merged to form negative, and strongly agree and agree were combined to form positive, with a total of 27 items. The content validity was 0.91, and reliability of perceived susceptibility was 0.91, severity was 0.85, benefit was 0.92, barrier was 0.75, and self-efficacy was 0.95. The questionnaire's content validity was determined by three experts in nursing. The survey tool was modified in response to their endorsements.

## Data Collection

Convenience sampling was used to distribute an online survey via a Google Form connection via WhatsApp, Facebook, and Instagram as Indonesia's most famous and accessible social media networks. All through the 10 July–30 August 2020 data collection period, we used various techniques to recruit as many respondents as possible from across the country. This entails leveraging researchers' strategic online and personal networks, as well as engaging

and circulating the survey with social media influencers and group leaders.

## Data Analysis

Descriptive analyses were used to assess sociodemographic data, knowledge, and HBM between groups. The outcomes are showed as percentages (%) and frequency ( $n$ ). The differences significance of categorical variables was calculated using a Chi-square. The relation between the three outcomes and the predictor variables was determined using a logistic regression model (sociodemographic, knowledge, and the HBM constructs). At a  $p$ -value of 0.05, statistical SPSS vers. 25 IBM (Armonk, NY, USA) significance was established. OR and 95% confidence intervals were used to express the direction and intensity of the association.

## Ethical Considerations

Ethical consideration was approved by the Survey and Behaviors Research Ethics Committee of Chakra Brahmanda Lentera (reference no.: 010/09/VI/EC/Lemb.Candle/2020). Written informed consent was obtained from each participant before participation in this study. The confidentiality of the data was protected during the report, and the data were collected anonymously.

## Results

### Characteristics of the Respondents

Of 522 citizens, almost half were in the age range of 25–39 years (236, 45.2%). The majority of respondents were female (346, 66.3%), and more than half were married (304, 58.2%). Most participants were degree holders with either a monthly income of 2.5–5.9 million rupiah, of which 325 (62.3 %) and 402 (64.0 %) participants, respectively. The majority of them lived in urban areas (372, 71.3%) and were health care workers (233, 44.6%). It is also shown that 54.6% of the participants had good knowledge, 70.5% wore the mask, 61.3% did social distancing, and 69.2% washed hands. Moreover, most perceived susceptibility, severity, benefit, barrier, and self-efficacy, were 67.0%, 69.7%, 68.6%, 67.6%, and 76.4%, respectively (Table 1).

### Relationships Demographic and Determinates Factors with Practices COVID-19

The overall characteristics of the respondents are summarized in Table 2. No significant differences ( $p < 0.05$ ) were noted in gender, age, marital status, occupation, income, and urbanicity between all group outcomes. However, a significant difference in educational levels was revealed between all groups (Table 2). Notably, Table 3 shows that there were significant differences ( $p < 0.001$ ) levels in knowledge, perceived susceptibility, severity, benefit, barrier, and self-efficacy between all groups of practice variables.

**Table 1** Characteristics data of the respondents (*n* = 522)

Variables	Category	Frequency ( <i>n</i> )	Percent (%)
Gender	Male	176	33.7
	Female	346	66.3
Age	17-24	156	29.9
	25-39	236	45.2
	≥ 40	130	24.9
Marital status	Married	304	58.2
	Unmarried	218	41.8
Occupation	Unemployed workers	156	29.9
	Non-health professional	133	25.5
	Health professional	233	44.6
Income (IDR)	<2.5 million	211	40.4
	2.5~5 million	222	42.5
	6~10 million	66	12.6
	>10 million	23	4.4
Urbanicity	Rural	150	28.7
	Urban	372	71.3
Education	ISCED <3	197	37.7
	ISCED ≥3	325	62.3
Knowledge	Low (score <9)	237	45.4
	High (score ≥10)	285	54.6
Perceived susceptibility	Negative	172	33.0
	Positive	350	67.0
Perceived barriers	Negative	169	31.4
	Positive	353	68.6
Perceived benefits	Negative	164	31.4
	Positive	358	68.6
Perceived severity	Negative	158	30.3
	Positive	364	69.7
Perceived self-efficacy	Negative	123	23.6
	Positive	399	76.4
Wearing a mask	No	154	29.5
	Yes	368	70.5
Social distancing	No	202	38.7
	Yes	320	61.3
Washing hands	No	161	30.8
	Yes	361	69.2

Note: IDR = Indonesian Rupiah; ISCED ≥3 = International Standard Classification of Education with ≥ secondary education

### Specific Health Factors associated with COVID-19 of Health Practices

Importantly, the values of the AORs and 95% CIs of knowledge, perceived susceptibility, severity, benefit, barrier, and self-efficacy for practices, including using a mask, social distancing, and washing hands, are summarized in Table 4. The citizens with high knowledge (score ≥10) had a 3.24-fold higher risk (95% CIs = 1.52~6.89) of wearing a mask, and social distancing (AORs 2.54; 95% CIs = 1.47~4.39), as well as washing hands (AORs 2.1; 95% CIs = 1.19~3.75), compared with low levels of knowledge after adjusting the confounder variables. Citizens with positively perceived susceptibility had a 4.91-fold higher risk (95% CIs = 2.34~10.31) of wearing a mask, and social distancing (AORs 1.95; 95% CIs = 1.08~3.52), as well as washing hands (AORs 3.99;

95% CIs = 2.26~7.05), compared with negatively perceived susceptibility. Individuals with a positive level of perceived barriers had a 0.21-fold higher risk (95% CIs = 0.08~0.56) of wearing a mask, and social distancing (AORs 0.13; 95% CIs = 0.06~0.26), as well as washing hands (AORs 0.29; 95% CIs = 0.14~0.60), compared with negative levels of perceived barriers after adjustment for confounders. Also, participants with positive perceived benefits had a 5.37-fold higher risk (95% CIs = 2.55~11.29) of wearing a mask, and social distancing (AORs 1.80; 95% CIs = 0.99~3.30), as well as washing hands (AORs 2.73; 95% CIs = 1.52~4.90), compared with negatively perceived benefits. Moreover, a significant association was observed between being positively severity and self-efficacy of all domains of health practices related to COVID-19 after confounding variables control (Table 4).

**Table 2** Relationships of distributions of demographic with practice toward COVID-19 pandemic (*n* = 522)

Variables	Practice, <i>n</i> (%)								
	Wearing a Mask when Leaving Home			Social Distancing			Washing Hands		
	No	Yes	<i>p</i>	No	Yes	<i>p</i>	No	Yes	<i>p</i>
<b>Gender</b>									
Male	57 (32.4)	119 (67.6)	0.303	78 (44.3)	98 (55.7)	0.060	58 (33.0)	118 (67.0)	0.456
Female	97 (28.0)	249 (72.0)		124 (35.8)	222 (64.2)		103 (29.8)	243 (70.2)	
<b>Age</b>									
17-24	47 (30.1)	109 (69.9)	0.241	67 (42.9)	89 (57.1)	0.339	51 (32.7)	105 (67.3)	0.543
25-39	62 (26.3)	174 (73.7)		84 (35.6)	152 (64.4)		67 (28.4)	169 (71.6)	
≥ 40	45 (34.6)	85 (65.4)		51 (39.2)	79 (60.8)		43 (33.1)	87 (66.9)	
<b>Marital status</b>									
Married	88 (28.9)	216 (71.1)	0.743	113 (37.2)	191 (62.8)	0.398	89 (29.3)	215 (70.7)	0.360
Unmarried	66 (30.3)	152 (69.7)		89 (40.8)	129 (59.2)		72 (33.0)	146 (67.0)	
<b>Occupation</b>									
Unemployed	48 (30.8)	108 (69.2)	0.275	68 (43.6)	88 (56.4)	0.075	50 (32.1)	106 (67.9)	0.551
Non-health professional	32 (24.1)	101 (75.9)		41 (30.8)	92 (69.2)		36 (27.1)	97 (72.9)	
Health professional	74 (31.8)	159 (68.2)		93 (39.9)	140 (60.1)		75 (32.2)	158 (67.8)	
<b>Income (IDR)</b>									
<2.5 million	64 (30.3)	147 (69.7)	0.152	92 (43.6)	119 (56.4)	0.249	69 (32.7)	142 (67.3)	0.630
2.5~5 million	64 (28.8)	158 (71.2)		80 (36.0)	142 (64.0)		65 (29.3)	157 (70.7)	
6~10 million	15 (22.7)	51 (77.3)		21 (31.8)	45 (68.2)		18 (27.3)	48 (72.7)	
>10 million	11 (47.8)	12 (52.2)		9 (39.1)	14 (60.9)		9 (39.1)	14 (60.9)	
<b>Urbanicity</b>									
Rural	48 (32.0)	102 (68.0)	0.427	63 (42.0)	87 (58.0)	0.325	51 (34.0)	99 (66.0)	0.321
Urban	106 (28.5)	266 (71.5)		139 (37.4)	233 (62.6)		110 (29.6)	262 (70.4)	
<b>Education</b>									
ISCED <3	122 (61.9)	75 (38.1)	<0.001	129 (65.5)	68 (34.5)	<0.001	116 (58.9)	81 (41.1)	<0.001
ISCED ≥3	32 (9.8)	293 (90.2)		73 (22.5)	252 (77.5)		45 (13.8)	280 (86.2)	

Note: *p*-values were calculated using the Chi-square test, or Fisher's exact test, where appropriate. A *p*-value of <0.05 indicates statistical significance. IDR = Indonesian Rupiah; ISCED = International Standard Classification of Education

**Table 3** Comparisons of knowledge and HBM with practices toward COVID-19 pandemic (*n* = 522)

Variables	Practice, <i>n</i> (%)								
	Wearing a Mask when Leaving Home			Social Distancing			Washing Hands		
	No	Yes	<i>p</i>	No	Yes	<i>p</i>	No	Yes	<i>p</i>
<b>Knowledge</b>									
Low (score <9)	119 (50.2)	118 (49.8)	<0.001	138 (58.2)	99 (41.8)	<0.001	117 (49.4)	120 (50.6)	<0.001
High (score ≥10)	35 (12.3)	250 (87.7)		64 (22.5)	221 (77.5)		44 (15.4)	241 (84.6)	
<b>Perceived susceptibility</b>									
Negative	109 (63.4)	63 (36.6)	<0.001	116 (67.4)	56 (32.6)	<0.001	110 (64.0)	62 (36.0)	<0.001
Positive	45 (12.9)	305 (87.1)		86 (24.6)	264 (75.4)		51 (14.6)	299 (85.4)	
<b>Perceived barriers</b>									
Negative	11 (6.5)	158 (93.5)	<0.001	15 (8.9)	154 (91.1)	<0.001	15 (8.9)	154 (91.1)	<0.001
Positive	143 (40.5)	210 (59.5)		187 (53.0)	166 (47.0)		146 (41.4)	207 (58.6)	
<b>Perceived benefits</b>									
Negative	105 (64.0)	59 (36.0)	<0.001	108 (65.9)	56 (34.1)	<0.001	99 (60.4)	65 (39.6)	<0.001
Positive	49 (13.7)	309 (86.3)		94 (26.3)	264 (73.7)		62 (17.3)	296 (82.7)	
<b>Perceived severity</b>									
Negative	115 (72.8)	43 (27.2)	<0.001	130 (82.3)	28 (17.7)	<0.001	107 (67.7)	51 (32.3)	<0.001
Positive	39 (10.7)	325 (89.3)		72 (19.8)	292 (80.2)		54 (14.8)	310 (85.2)	
<b>Perceived self-efficacy</b>									
Negative	91 (74.0)	32 (26.0)	<0.001	92 (74.8)	31 (25.2)	<0.001	84 (68.3)	39 (31.7)	<0.001
Positive	63 (15.8)	336 (84.2)		110 (27.6)	289 (72.4)		77 (19.3)	322 (80.7)	

Note: *p*-values were calculated using the Chi-square test, or Fisher's exact test, where appropriate. A *p*-value of <0.05 indicates statistical significance

**Table 4** Adjusted beta-coefficients and 95% confidence intervals (CIs) of knowledge and HBM with participants' practices toward COVID-19 pandemic ( $n = 522$ )

Variables	Practice, $n$ (%)					
	Wearing a Mask when Leaving Home		Social Distancing		Washing Hands	
	Unadjusted OR (95% CI)	AOR (95% CI)	Unadjusted OR (95% CI)	AOR (95% CI)	Unadjusted OR (95% CI)	AOR (95% CI)
<b>Knowledge</b>						
Low (score <9)	1.00	1.00	1.00	1.00	1.00	1.00
High (score $\geq 10$ )	7.20 (4.66~11.14)***	3.24 (1.52~6.89)**	4.81 (3.29~7.04)***	2.54 (1.47~4.39)**	5.34 (3.54~8.05)***	2.11 (1.19~3.75)**
<b>Perceived susceptibility</b>						
Negative	1.00	1.00	1.00	1.00	1.00	1.00
Positive	11.73 (7.55~18.22)***	4.91 (2.34~10.31)***	6.36 (4.26~9.50)***	1.95 (1.08~3.52)*	10.40 (6.77~15.99)***	3.99 (2.26~7.05)***
<b>Perceived barriers</b>						
Negative	1.00	1.00	1.00	1.00	1.00	1.00
Positive	0.10 (0.05~0.20)***	0.21 (0.08~0.56)**	0.09 (0.05~0.15)***	0.13 (0.06~0.26)***	0.14 (0.08~0.24)***	0.29 (0.14~0.60)***
<b>Perceived benefits</b>						
Negative	1.00	1.00	1.00	1.00	1.00	1.00
Positive	11.22 (7.24~17.40)***	5.37 (2.55~11.29)***	5.42 (3.63~8.08)***	1.80 (0.99~3.30)*	7.27 (4.80~11.02)***	2.73 (1.52~4.90)***
<b>Perceived severity</b>						
Negative	1.00	1.00	1.00	1.00	1.00	1.00
Positive	22.30 (13.75~36.12)***	10.94 (4.97~24.06)***	18.83 (11.62~30.52)***	10.21 (5.44~19.19)***	12.04 (7.74~18.73)***	3.67 (2.03~6.66)***
<b>Perceived self-efficacy</b>						
Negative	1.00	1.00	1.00	1.00	1.00	1.00
Positive	15.17 (9.34~24.62)***	8.02 (3.50~18.38)***	7.80 (4.91~12.38)***	2.79 (1.43~5.45)**	9.01 (5.72~14.18)***	2.62 (1.41~4.87)**

Note: Data were presented using OR and AOR,  $p$ -values were calculated using logistic regression. AOR adjusted for gender, age, marital status, occupation, income, education levels, and urbanicity. A  $p$ -value of < 0.05, \*\*  $p$ -value of < 0.01, \*\*\*  $p$ -value of < 0.001 indicates statistical significance

## Discussion

To our knowledge, no research has examined the determinants of health practices and their related factors in the East Java population during the COVID-19 pandemic, especially with an almost equal sample population from the healthcare and non-healthcare field. Although a previous study explored practices, it did not evaluate the perception of health belief toward the COVID-19 pandemic (Muslih et al., 2021). Our findings indicated that citizens who had high levels of knowledge and positive levels of all items of the health belief model of COVID-19 had good practice of wearing the mask, social distancing, and washing hands.

Prior cross-sectional reports revealed that good knowledge was significantly and positively correlated with practice against the COVID-19 transmission (Bechard et al., 2021; Muslih et al., 2021). It is in line with another study; approximately 52.9% of the individuals had positive knowledge regarding COVID-19 among Ethiopian citizens (Shewasinad Yehualashet et al., 2021). Moreover, the current study showed that citizens with good levels of knowledge have a 3.24-fold, 2.54-fold, and 2.11-fold higher risk of wearing a mask, social distancing, and washing hands compared with low levels of knowledge after adjusting the confounder variables, respectively. Another

study reported that a high level of knowledge was significantly related to social distancing, wearing a mask (Zhong et al., 2020) in China, and washing hands (Bates et al., 2020) in Ecuador. Moreover, repots study in Malaysia showed that higher levels of knowledge were consistently positively using a mask and not going to a crowded place, but not significantly with washing hands or using the hand sanitizer. Inconsistent findings have several reasons, including this variance in knowledge levels may indicate the country's current COVID-19 continuous updating.

Furthermore, though health authorities have regularly disseminated information since the disease was first discovered, there has also been an increase in false and inaccurate information. Remarkably, the information overload may have resulted in uncertainty and difficulty ascertaining accurate information (Azlan et al., 2020). Consequently, healthcare providers, including nurses, should be responsible for providing comprehensive health information through counseling programs for social distancing, wearing masks, and handwashing, to successfully boost the against COVID-19 transmission.

Interestingly, the citizens' belief of COVID-19 transmission was formulated from HBM domains. A report indicated that the health practices of the Indonesian citizens, particularly in East Java, are still the gap on the



belief related to this pandemic. Since Indonesian citizens have low adherence to health practices with a prevalence of 12%-24%, which are now critical factors for COVID-19 transmission (Muslih et al., 2021), the communities need to ensure and apply HBM constructs on preventive measures of COVID-19 infections (Shewasinad Yehualashet et al., 2021). The HBM predicts that a greater perceived susceptibility increases the probability of engaging in health-promoting behaviors such as social distancing, proper face mask use, and hand hygiene. The perceived susceptibility refers to an individual's subjective evaluation of the risk associated with COVID-19. Individuals who believe they are at low risk of contracting a disease are more likely to participate in unhealthy conduct. In comparison, anyone who thinks they are at risk of experiencing an infection is more likely to take steps to mitigate the risk (Onoruoiza et al., 2015). Remarkably, perceived benefits contribute to an individual's evaluation of the importance or effectiveness of participating in a health-promoting behavior to decline disease risk.

If a judge believes that a specific action can minimize vulnerability to or severity of a health condition, the citizen is likely to repeat the behavior regardless of empirical evidence about the action's effectiveness. Linear with the previous research in India, most participants found it incredibly easy to prevent infection if they followed the health authorities' advice (93.8%) and followed the same (Jose et al., 2021). Indeed, the HBM approach assumes that health-related practice is often affected by an individual's perceived barrier and self-efficacy from healthy activities, specifically COVID-19 preventive behavior (Tadesse et al., 2020). Similar to our results, media barriers were primarily the perceived barriers, not disease prevention barriers. The rapid introduction of various media introduced public uncertainty about behavioral changes (Jose et al., 2021). Overall effective awareness about the disease information was imperative. There were the programs that the authorities trusted, activities and information that were offered, and media resources aimed at improving health care (Rosenstock et al., 1988; Carpenter, 2010; Jose et al., 2021). Consequently, these findings and periodic evaluations of public HBM domains can be used to make policy preparation and used in the nursing intervention in the event of subsequent epidemic waves, thus avoiding the spread of a new pandemic.

The study's limitation is that data were collected via social media, which might have introduced bias due to the lack of certain target populations. Another constraint is that responses via Google's online forms could not monitor internet protocols (IP) addresses (Sharma & Tikka, 2020). However, comparable surveys have been performed (Azlan et al., 2020; Rias et al., 2020; Jose et al., 2021; Muslih et al., 2021) due to the impossibility of conducting a population survey directly due to social distancing. Another limitation was the lack of volunteers from East Java, especially rural residents, whom future studies could attempt to recruit specifically, as this may impair the findings' generalizability. However, we used multiple logistics regression analysis to

predict a large population behavior with possible confounding variables, thus eliminating the consequence of unequal distribution.

## Conclusion

Perceived self-efficacy, susceptibility, barrier, severity, and benefit were strongly related to health practices, including social distancing, washing hands, and wearing masks after adjusting the socio-demographic variables as confounding factors. The findings can be used for nurses and program managers to create successful baseline reference thresholds and establish goals in Indonesia. Also, this finding indicated that nurse educators and health professionals play critical roles in identifying and promoting treatment-targeted approaches, such as increasing knowledge and implementing the HBM constructs to improve individual practices regarding the COVID-19 pandemic among citizens in Indonesia.

## Declaration of Conflicting Interest

All the authors declare that they have no competing interests.

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## Authors' Contributions

Conception: EW, CUW, YAR, YM, SS, DLW. Investigators: EW, CUW, DLW. Design: EW, CUW, YAR, YM. Acquisition: EW. Analysis: EW, CUW, YAR, YM. Interpretation: EW, CUW, YAR, YM, DLW. Drafted manuscript: EW, CUW, YAR, YM, SS, DLW. Critically revised manuscript: EW, CUW, YAR, YM, SS, DLW. Giving final approval: EW, CUW, YAR, YM, SS, DLW. All authors agreed to be fully responsible for ensuring the integrity and accuracy of the work and approved the final version of the article.

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#### Data Availability Statement

All data generated or analyzed during this study are included in this published article. The data sets are not publicly available due to the information that could compromise research participants' privacy.

#### References

- Abdulkareem, S. A., Augustijn, E.-W., Filatova, T., Musial, K., & Mustafa, Y. T. (2020). Risk perception and behavioral change during epidemics: Comparing models of individual and collective learning. *PLoS One*, 15(1), e0226483. <https://doi.org/10.1371/journal.pone.0226483>
- Azlan, A. A., Hamzah, M. R., Sern, T. J., Ayub, S. H., & Mohamad, E. (2020). Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *PLoS One*, 15(5), e0233668. <https://doi.org/10.1371/journal.pone.0233668>
- Barakat, A. M., & Kasemy, Z. A. (2020). Preventive health behaviors during coronavirus disease 2019 pandemic based on health belief model among Egyptians. *Middle East Current Psychiatry*, 27(1), 1-9. <https://doi.org/10.1186/s43045-020-00051-y>
- Bates, B. R., Moncayo, A. L., Costales, J. A., Herrera-Cespedes, C. A., & Grijalva, M. J. (2020). Knowledge, attitudes, and practices towards COVID-19 among Ecuadorians during the outbreak: An online cross-sectional survey. *Journal of Community Health*, 45(6), 1158-1167. <https://doi.org/10.1007/s10900-020-00916-7>
- Bechard, L. E., Bergelt, M., Neudorf, B., DeSouza, T. C., & Middleton, L. E. (2021). Using the health belief model to understand age differences in perceptions and responses to the COVID-19 Pandemic. *Frontiers in Psychology*, 12, 1216. <https://doi.org/10.3389/fpsyg.2021.609893>
- Carpenter, C. J. (2010). A meta-analysis of the effectiveness of health belief model variables in predicting behavior. *Health Communication*, 25(8), 661-669. <https://doi.org/10.1080/10410236.2010.521906>
- Grech, V. (2020). COVID-19 and potential global mortality-revisited. *Early Human Development*, 144, 105054. <https://doi.org/10.1016/j.earlhumdev.2020.105054>
- Gugus Tugas Percepatan Penanganan COVID-19. (2021). *Peta sebaran COVID-19 (13 Juni 2021) [Distribution map of COVID-19]*. Retrieved from <https://covid19.go.id/peta-sebaran>
- Hsiang, S., Allen, D., Annan-Phan, S., Bell, K., Bolliger, I., Chong, T., . . . Krasovich, E. (2020). The effect of large-scale anti-contagion policies on the COVID-19 pandemic. *Nature*, 584(7820), 262-267. <https://doi.org/10.1038/s41586-020-2404-8>
- Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., . . . Gu, X. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*, 395(10223), 497-506. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5)
- Jose, R., Narendran, M., Bindu, A., Beevi, N., Manju, L., & Benny, P. (2021). Public perception and preparedness for the pandemic COVID 19: a health belief model approach. *Clinical Epidemiology and Global Health*, 9, 41-46. <https://doi.org/10.1016/j.cegh.2020.06.009>
- Muslih, M., Susanti, H. D., Rias, Y. A., & Chung, M.-H. (2021). Knowledge, attitude, and practice of Indonesian residents toward covid-19: A cross-sectional survey. *International Journal of Environmental Research and Public Health*, 18(9), 4473. <https://doi.org/10.3390/ijerph18094473>
- Narayana, G., Pradeepkumar, B., Ramaiah, J. D., Jayasree, T., Yadav, D. L., & Kumar, B. K. (2020). Knowledge, perception, and practices towards COVID-19 pandemic among general public of India: A cross-sectional online survey. *Current Medicine Research and Practice*, 10(4), 153-159. <https://doi.org/10.1016/j.cmrp.2020.07.013>
- Onoruoiza, S. I., Musa, A., Umar, B., & Kunle, Y. (2015). Using health beliefs model as an intervention to non compliance with hypertension information among hypertensive patient. *International of Humanities and Social Science*, 20(9), 11-16.
- Rias, Y. A., Rosyad, Y. S., Chipojola, R., Wiratama, B. S., Safitri, C. I., Weng, S. F., . . . Tsai, H. T. (2020). Effects of spirituality, knowledge, attitudes, and practices toward anxiety regarding COVID-19 among the general population in Indonesia: A cross-sectional study. *Journal of Clinical Medicine*, 9(12), 3798. <https://doi.org/10.3390/jcm9123798>
- Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the health belief model. *Health Education Quarterly*, 15(2), 175-183. <https://doi.org/10.1177/109019818801500203>
- Sharma, R., & Tikka, S. K. (2020). COVID-19 online surveys need to follow standards and guidelines: Comment on "Does COVID-19 pandemic affect sexual behavior? A cross-sectional, cross-national online survey" and "Binge watching behavior during COVID 19 pandemic: A cross-sectional, cross-national online survey". *Psychiatry Research*, 290, 113173. <https://doi.org/10.1016/j.psychres.2020.113211>
- Shewasinad Yehualashet, S., Asefa, K. K., Mekonnen, A. G., Gemeda, B. N., Shiferaw, W. S., Aynalem, Y. A., . . . Mekonnen, W. N. (2021). Predictors of adherence to COVID-19 prevention measure among communities in North Shoa Zone, Ethiopia based on health belief model: A cross-sectional study. *PLoS One*, 16(1), e0246006. <https://doi.org/10.1371/journal.pone.0246006>
- Tadesse, T., Alemu, T., Amogne, G., Endazewaw, G., & Mamo, E. (2020). Predictors of Coronavirus Disease 2019 (COVID-19) Prevention practices using health belief model among employees in Addis Ababa, Ethiopia, 2020. *Infection and Drug Resistance*, 13, 3751. <https://doi.org/10.2147/IDR.S275933>
- World Health Organization. (2020). *WHO Coronavirus Disease (COVID-19) dashboard*. Retrieved from <https://covid19.who.int/>
- Zhong, B.-L., Luo, W., Li, H.-M., Zhang, Q.-Q., Liu, X.-G., Li, W.-T., & Li, Y. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: A quick online cross-sectional survey. *International Journal of Biological Sciences*, 16(10), 1745. <https://doi.org/10.7150/ijbs.45221>

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# Willingness of university nursing students to volunteer during the COVID-19 pandemic in Brunei Darussalam

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## Abstract

**Background:** Volunteering among nursing students has become a valuable resource during an outbreak to help alleviate the strain in nursing staff shortages. However, evidence of willingness to volunteer is scarce, particularly in Asian countries.

**Objective:** To study Bruneian university nursing students' willingness to volunteer during a pandemic in Brunei.

**Methods:** An online cross-sectional study was conducted at Universiti Brunei Darussalam from January to February 2021. A self-administered questionnaire was used to measure willingness factors, including motivational factors, barriers, enablers, and level of agreement to volunteer during the COVID-19 pandemic. Sub-group inferential analysis was applied.

**Results:** 72 participants were included in this study. 75.0% of whom were willing to volunteer during the COVID-19 pandemic. Factors that influenced the willingness of nursing students to volunteer were marital status ( $p < 0.001$ ), year of study ( $p < 0.001$ ), altruism ( $p < 0.001$ ), personal safety ( $p < 0.001$ ), and knowledge level ( $p < 0.001$ ).

**Conclusion:** Nursing students are an invaluable resource, and they are highly willing to be part of disaster management. Training and planning should prepare the nursing students for disaster or pandemic readiness and integrated them into the undergraduate nursing curriculum. Align with this, safety aspects of nursing students during volunteering should also be considered, including the provision of childcare assistance, sufficient personal protective equipment, vaccination, and prophylaxis to the volunteers.

## Keywords

COVID-19; willingness; nursing; students; volunteerism; online survey; nursing; Brunei Darussalam

During COVID-19 (Coronavirus Disease 2019) pandemic, nursing students were given the option to volunteer by undertaking extended placements in hospitals to overcome the reduction in manpower and overwhelming patient demand (Hayter & Jackson, 2020; Swift et al., 2020). COVID-19 is a highly infectious respiratory disease that originated in Wuhan, China, on 31 December 2019 (Cervera-Gasch et al., 2020). Due to the contagious nature of the virus, COVID-19 has quickly become a global pandemic, with 129,215,179 confirmed cases worldwide, as stated by the World Health Organization (2021).

During the COVID-19 pandemic, diverse workforces have to temporarily halt their jobs to contain the virus;

however, this did not apply to healthcare professionals as they were required to continue their jobs in fighting and prevent the spread of the virus (Pogoy & Cutamora, 2021). This was also applied to nurses as they form the largest sector in a healthcare system; thus, it was impertinent that their availability in the healthcare settings during the pandemic was ensured (Natan et al., 2015). Although registered nurses are important healthcare providers, given their ability to offer direct care and support services, there is usually a nursing shortage (Blackwood, 2017). Disasters such as disease pandemics make nursing shortages more critical as such disasters increase patient demand, often exceeding the operational capacity of

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healthcare facilities (Blackwood, 2017; McNeill et al., 2020).

Volunteering among nursing students has become a valuable resource during an outbreak. COVID-19 is a highly infectious disease that has quickly become a global pandemic. This pandemic has caused a strain in existing nursing staff shortages due to overwhelming patient demand. Evidence of willingness to volunteer is scarce, particularly in Asian countries. Therefore, this study aims to investigate the willingness of university nursing students to volunteer during the COVID-19 pandemic.

### Factors influencing willingness of nursing students to volunteer: Literature review

**Willingness to volunteer** - From a Spanish study done on 102 Spanish medical and nursing students from 11 universities, 74.2% were willing to volunteer during a crisis (Cervera-Gasch et al., 2020). Furthermore, a survey in Ireland in the year 2019 also found that 59% of their survey participants were willing to volunteer during an infectious disease outbreak (O'Byrne et al., 2020). This statement is further supported by a cross-sectional study by Yu et al. (2020), in which 85.6% of their nursing and medical student participants would gladly volunteer during the COVID-19 outbreak. Similarly, all 40 Spanish nursing students from the Martin-Delgado et al. (2021) study stated that they were willing to volunteer during the COVID-19 pandemic. These claims are further evidenced by a study on 711 Denmark medical students, which within two weeks of COVID-19, all master students and 70% of their bachelor students volunteered to work in nine pandemic emergency departments as temporary residents, ventilator therapy assistants, or nursing assistants (Rasmussen et al., 2020). Moreover, Astorp et al. (2020) also found that 81.6% of their sample of Danish medical students wanted to be a part of the healthcare workforce during the pandemic.

**Sociodemographic** - According to Yu et al. (2020), gender and year of study play a role in influencing willingness to volunteer during a pandemic among nursing students. In a study done in China, it was found that female nursing students were more likely to volunteer during a crisis as compared to male nursing students, and junior nursing students were more willing to volunteer compared to seniors (Yu et al., 2020).

**Moral obligation** - One of the most common factors that positively influence volunteering among healthcare students is a moral obligation. A study done in the United Kingdom by O'Byrne et al. (2020) reported that 81% of their participants agreed that healthcare professionals have a moral obligation to report for duty during a pandemic, and similarly, health students should be encouraged to volunteer as well. This finding is supported by Yu et al. (2020), which 348 out of 552 Chinese medical students agree that volunteering during a pandemic should be based on professional obligations. Another study that supports these findings is a cross-sectional study done by Huapaya et al. (2015) conducted in Peru, where 77% agree to such statements on moral obligations. Similarly, final-

year Spanish nursing students also expressed their feelings of commitment and moral responsibility to society in combatting the COVID-19 pandemic (Gómez-Ibáñez et al., 2020). From these results, it can be said that moral obligations among healthcare students know no nationality, and moral obligation can be seen among these future healthcare professionals worldwide.

**Safety** - Another important factor influencing nursing students' decision to volunteer is the provision of necessary personal protective equipment (Martin-Delgado et al., 2021). A Canadian study reported that 77.4% of their participants would volunteer if provided protective garments (Yonge et al., 2010). In addition, the majority of the nursing students in Yonge et al. (2010) agreed that volunteers should be given first access to vaccines and scarce health resources to ensure their safety (Yonge et al., 2010). The strong need that the volunteers expressed for the protective tools are due to the fear of contracting the virus, risking their safety and the safety of their families, and may potentially even lead to death (Astorp et al., 2020). This is supported by a study by Patel et al. (2020), in which British medical students expressed their concern for their safety, especially with the constant media reports of health workers dying due to the virus.

**Tasks** - In the act of volunteering during a pandemic, it was found that Chinese medical were more willing to volunteer if the tasks given to them were low hazard tasks such as feeding patients, doing administrative work, providing refreshments to staff, working in the community staffing phone lines, or doing volunteering services such as checking on neighbours or buying groceries for elderlies or those who are ill (Yu et al., 2020). In contrast, 83% of 848 medical students in Spain asserted that the roles given to them while volunteering during a pandemic should still be hospital-related (Huapaya et al., 2015).

**Preparedness** - One factor that negatively influences willingness to volunteer during a pandemic is the lack of preparedness. 65.3% of the sample from Cervera-Gasch et al. (2020) study felt like they were unprepared to attend to patients during an outbreak. Similarly, Spanish nursing students also raised doubts about their preparedness to care for patients during the COVID-19 pandemic (Martin-Delgado et al., 2021). Furthermore, a study on medical students in the United States showed that before completing their disaster preparedness elective, 70% of their students felt unprepared to participate in an emergency such as that of an outbreak, as compared to 11% after the elective was completed (O'Byrne et al., 2020).

As COVID-19 is still considered a new phenomenon, the number of studies conducted regarding the topic is quite scarce. From the studies available, however, it can be seen that the majority of the studies are done in western countries. To address this gap in the literature, this research aimed to study Bruneian university nursing students' willingness to volunteer during the COVID-19 pandemic.

## Methods

### Study Design

This was a cross-sectional online survey conducted at the Institute of Health Sciences (IHS), Universiti of Brunei Darussalam, from January to February 2021.

### Sample/ Participants

Considering the small number of nursing students (approximately 100 students), all the nursing students were recruited. The criteria for participants to be eligible in the study included: 1) students undertaking the nursing degree program, 2) students studying in IHS, UBD, 3) enrolled in IHS during the COVID-19 pandemic. Students enrolled outside of UBD such as PB and IBTE and are taking other health sciences programs such as Midwifery, Medicine, Dentistry, Biomedical Sciences, and Pharmacy were not included as part of the sample.

### Instrument

The English-language online questionnaire was adapted from Blackwood (2017), a 26-item instrument that measures the willingness of volunteering during disasters or public health emergencies. The tool is validated by the original developer and is available in the public domain via its published article (Blackwood, 2017). Relevant demographic information such as gender, age, marital status, and year of study was collected, along with motivational factors to enrol in nursing, barriers, enablers, and level of agreement of nursing students to be encouraged to volunteer during a disaster.

### Data Collection

Considering the small population of IHS with only approximately 100 students, all eligible nursing students in IHS were recruited for the study using the participant selection method. As this study involved human samples,

approval from IHSREC was needed before data collection was commenced. After the approval was obtained, the list of students' email addresses was requested from the University Liaison Office/IHS administration office. The questionnaire was then sent to the students via their webmail. The questionnaire was done through an online platform due to the ongoing COVID-19 situation in which face-to-face contact should be reduced to a minimum.

### Data Analysis

Descriptive statistics (frequency and percentage) was computed to describe the demographic and outcome variables. Sub-group analysis (Fisher's exact test) was applied to determine the association of outcome variable (willingness to volunteer) towards motivational factors, barriers, enablers, and level of agreement, and demographic factors. All analysis was performed using RStudio 1.1.383.

### Ethical Consideration

The research procedure was assessed by the ethics committee of Universiti Brunei Darussalam (UBD/PAPRSB IHSREC/2020/63). Digital consent was obtained prior to joining the study.

## Results

### Sociodemographic Data

A total of 72 nursing students from Universiti Brunei Darussalam were included, representing a response rate of 65.5%. Out of the 72 participants, 54 (75.0%) showed that they were willing to volunteer in the event of a pandemic. The majority of the participants are first-year students (40.3%), followed by second-year (20.8%), third-year (19.4%), and fourth-year (18.1%). Most (77.8%) of the participants are female, 65.0% around the age range of 18-22 years old, and 88.9% are single (Table 1).

**Table 1** Demographic factors in association with willingness to volunteer during COVID-19 among nursing students ( $n = 72$ )

	Willingness to volunteer during COVID-19			<i>p</i> -value <sup>a</sup>
	Yes <i>n</i> (%)	No <i>n</i> (%)	Total <i>n</i> (%)	
<b>Overall</b>	54 (75.0)	18 (25.0)	72 (100.0)	
<b>Age</b>				0.307
18 – 22	33 (70.3)	13 (27.7)	47 (65.3)	
>22	13 (52.0)	11 (44.0)	25 (34.7)	
<b>Gender</b>				0.077
Female	39 (69.6)	15 (30.4)	56 (77.8)	
Male	7 (43.8)	9 (56.2)	16(22.2)	
<b>Marital status</b>				<0.001
Single	40 (62.5)	23 (37.5)	64 (88.9)	
Married	6 (85.7)	1 (14.3)	7 (11.1)	
<b>Year</b>				<0.001
1	21 (72.4)	8 (27.6)	29 (40.8)	
2	8 (53.3)	6 (46.7)	15 (21.1)	
3	9 (64.3)	5 (35.7)	14 (19.7)	
4	8 (61.5)	5 (38.5)	13 (18.3)	

<sup>a</sup> Fisher's exact test

*n* = frequency

% = percentage



In terms of willingness to volunteer, there was a significant association between years of study and marital status. The participants who were married (85.7%) were more willing to volunteer ( $p < 0.001$ ), and participants in their first year of study (72.4%) were more willing to volunteer compared to those who were in their second year (53.3%) ( $p < 0.001$ ) and also was more willing than third and fourth-year students. There were no significant differences in age and gender concerning nursing students volunteering during the pandemic (Table 1).

### Motivational factor in enrolling in nursing

There was a significant association between motivational factors and willingness to volunteer ( $p < 0.001$ ). We

observed that the highest motivational factor for the participants to enrol in nursing, related to willingness to volunteer during COVID-19 was because of job security (75.0%), followed by helping others to cope with illness (74.1%), earning a good salary (73.0%), giving their life a sense of meaning (72.4%), they have a calling (71.4%), wanting to work in a caring occupation, (71.4%), job flexibility (71.4%), wanting to help people (69.2%), feel that they can advance in the field of healthcare (68.0%), interested in science (66.0%), and lastly because the flexible educational requirements permit them to finish schooling quickly (52.6%) (Table 2).

**Table 2** Motivational factors to enrol in nursing associated with willingness to volunteer during COVID-19 among nursing students ( $n=72$ )

Motivational factors (I want to become a nurse because...)	Willingness to volunteer during COVID-19			p-value
	Yes <i>n</i> (%)	No <i>n</i> (%)	Total <i>n</i> (%)	
The occupation offers job security	33 (75.0)	11 (25.0)	44 (61.1)	<0.001
I want to help others cope with illness	43 (74.1)	15 (25.9)	58 (80.6)	<0.001
I can earn a good salary	27 (73.0)	10 (27.0)	37 (51.4)	<0.001
Nursing gives my life a sense of meaning	34 (72.3)	13 (27.7)	47 (65.3)	<0.001
I have a calling	20 (71.4)	8 (28.6)	28 (8.9)	<0.001
I want to work in a caring occupation.	40 (71.4)	16 (28.6)	56 (77.8)	<0.001
The occupation offers job flexibility	25 (71.4)	10 (28.6)	35 (48.6)	<0.001
I want to help people	45 (69.2)	20 (30.8)	65 (90.3)	<0.001
I feel that I can advance in the field of healthcare	34 (68.0)	16 (32.0)	50 (69.4)	<0.001
I am interested in science	35 (66.0)	18 (34.0)	53 (73.6)	<0.001
The flexible educational requirements permit me to finish my schooling quickly	10 (52.6)	9 (47.4)	19 (26.4)	<0.001

a Fisher's exact test

*n* = frequency

% = percentage

### Barriers

When examining the factors that prevent the participants from volunteering during a pandemic, the highest barrier found was having responsibility for dependent children (53.6%). Fear for personal safety and well-being (57.5%), type of disaster (60.0%), fear for the safety and well-being

of family members (65%), lack of disaster training and education (65.6%), and being a student nurse (67.7%) have also been found to have a significance in acting as barriers for the nursing students from volunteering during COVID-19 ( $p < 0.001$ ) (Table 3).

**Table 3** Barriers associated with willingness to volunteer during COVID-19 among nursing students ( $n=72$ )

Barriers	Willingness to volunteer during COVID-19			p-value
	Yes <i>n</i> (%)	No <i>n</i> (%)	Total <i>n</i> (%)	
Being a nursing student	21 (67.7)	10 (32.3)	31 (43.1)	<0.001
Lack of disaster training and education	40 (65.6)	21 (34.4)	61 (84.7)	<0.001
Fear for the safety and well-being of my family members	39 (65.0)	21 (35.0)	60 (83.3)	<0.001
Type of disaster	24 (60.0)	16 (40.0)	40 (55.6)	<0.001
Fear for my personal safety and well-being	23 (57.5)	17 (42.5)	40 (55.6)	<0.001
Responsibility for dependent children	15 (53.6)	13 (46.4)	28 (38.9)	<0.001

a Fisher's exact test

*n* = frequency

% = percentage

### Enablers

The results shown in Table 4 indicate that having access to safe reliable childcare (76.3%), the availability of vaccines and prophylaxis to the volunteers (71.7%), and their family members (71.2%), the provision of appropriate personal protective equipment (70.5%), having more

knowledge about disaster response (70.5%), knowing their families would be safe (69.8%), and knowing they would be safe from illness or harm (67.2%) are positively correlated to the willingness of the participants to volunteer.

**Table 4** Situational factors associated with willingness to volunteer during COVID-19 among nursing students ( $n=72$ )

Factors that increase willingness	Willingness to volunteer during COVID-19			p-value
	Yes <i>n</i> (%)	No <i>n</i> (%)	Total <i>n</i> (%)	
If I had access to safe reliable childcare	29 (76.3)	9 (23.7)	38 (52.8)	<0.001
If vaccines and prophylaxis were available to me	43 (71.7)	17 (28.3)	60 (83.3)	<0.001
If vaccines and prophylaxis were provided to my family members	42 (71.2)	17 (28.8)	59 (81.9)	<0.001
If I were provided with appropriate personal protective equipment (PPE)	43 (70.5)	18 (29.5)	61 (84.7)	<0.001
If I had more knowledge about disaster response	43 (70.5)	18 (29.5)	61 (84.7)	<0.001
If I knew my family would be safe	44 (69.8)	19 (30.2)	63 (87.5)	<0.001
If I knew I would be safe from illness or harm	39 (67.2)	19 (32.8)	58 (80.6)	<0.001

a Fisher's exact test

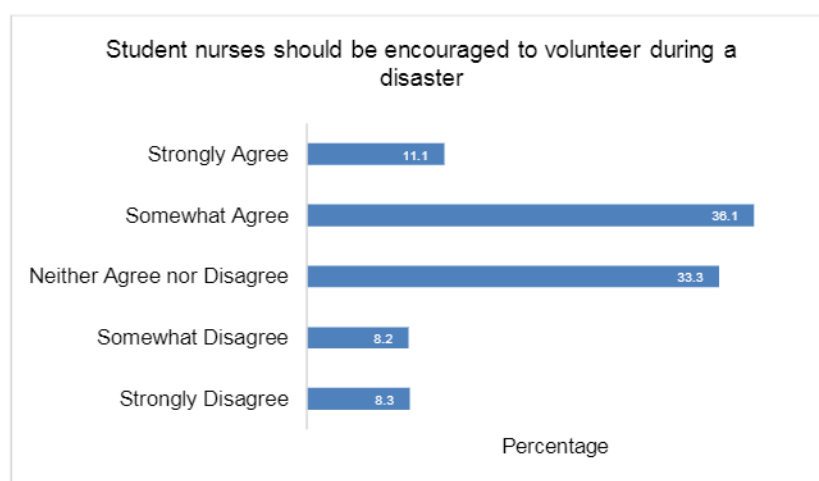
*n* = frequency

% = percentage

**Encourage nursing students to volunteer**

The research findings show that 47.2% of respondents agreed (strongly agree 11.1%; somewhat agree 36.1%) that nurses should be encouraged to volunteer during a disaster. Conversely, few participants (16.5%) disagreed

(strongly disagree 8.3%; somewhat disagree 8.2%) that nursing students should be encouraged to volunteer during a disaster, and 33.3% neither agree nor disagree (Figure 1).

**Figure 1** Summary of responses for the level of agreement on encouraged to volunteer during a disaster ( $n=72$ )**Discussion**

With the presence of a pandemic, staff nurses are stretched thin due to the lack of staff, which is why recruiting volunteers, especially nursing students, is recommended to overcome this problem (Blackwood, 2017; Hayter & Jackson, 2020; Iserson, 2020; McNeill et al., 2020; Swift et al., 2020; Quisao et al., 2021). However, from previous research, it can be observed that obtaining volunteers during an emergency can indeed be a challenge (Blackwood, 2017). Therefore, the key objective of this paper was to assess the factors that may influence the willingness of university nursing students to volunteer during a pandemic.

**Prevalence of willingness to volunteer**

Overall, the prevalence of university nursing students volunteering in Brunei was 75.4%. The findings were

similar to a study by Blackwood (2017) among bachelor nursing students in the United States; however, Blackwood (2017) achieved a higher percentage of willingness (86.5%) as compared to the present study. Additionally, these results were similar to studies conducted on medical students from China, and Peru, where the overall willingness to volunteer during a pandemic was 63% and 77%, respectively (Huapaya et al., 2015; Yu et al., 2020). The difference in prevalence between these countries may be due to the different severity of the situations presented to the nursing students during the survey. For example, Blackwood (2017) had the highest prevalence of willingness to volunteer due to the situation presented to the students, which were general emergencies, admittedly the most varied and least deadly situation from the rest. For Huapaya et al. (2015) study, it was conducted during avian influenza, which is a slightly less deadly viral infection than the coronavirus, reaching only a total death

count of 455 from the year 2003-2020 (World Health Organization, 2020). For Yu et al. (2020) and the present study, however, yielded the least prevalence of willingness to volunteer among student nurses due to the deadly nature of the COVID-19 infection. This is evidenced by the high death count of 2,804,120 from December 2019 to March 2021 (World Health Organization, 2021).

Besides the severity of the situation, demographic data is also one of the main predictors of willingness to volunteer. The results of this study demonstrated that marital status plays a role in affecting willingness to volunteer among nursing students; specifically, participants who were married were more likely to volunteer during a pandemic (85.7%). The reason behind this may be because these participants are among those who were taking their nursing degree while in-service, which means that they have more knowledge and experience in volunteering during emergencies.

Furthermore, as seen in Table 1, the willingness to volunteer during a pandemic decreased with seniority. This trend is similar to the results in Yu et al. (2020), in which junior medical students were more willing to volunteer during a pandemic as compared to their seniors.

Among the participants, women had a higher response rate of 77.8% compared to men, which is a common trend found in various studies due to the higher number of women than men entering health-related courses (Dyson et al., 2017). Interestingly, despite the higher response rate of women than men, the results showed that gender has no significance in influencing nursing students to volunteer during a pandemic, as men were as likely willing to volunteer during a pandemic as women ( $p=0.077$ ). These findings, however, differ from a study conducted by Yu et al. (2020) on Chinese medical students who noted that female students were more likely to volunteer during COVID-19 than their male colleagues.

### Factors that promote volunteerism nursing students

From the results of the present study, multiple factors were significant in promoting a sense of volunteerism among student nurses, which have been grouped into altruism, family, and personal reasons.

First of all, altruism is one of the most significant motivating factors for nursing students to volunteer during a pandemic (Blackwood, 2017; Gouda et al., 2020; O'Byrne et al., 2020). This can also be seen in the results of this study, in which almost half of the participants agreed that nursing students should be encouraged to volunteer in the case of an emergency such as a pandemic. Moreover, traits of altruism can be seen in the participants that were willing to volunteer by their intentions to join the nursing workforce due to reasons such as wanting to care for others (71.4%) and helping people (69.2%), especially those who are suffering from illnesses (74.1). These traits of altruism are not only limited to Bruneian nursing students as even American nursing students that were willing to volunteer from Blackwood (2017) study also entered nursing due to their intentions in wanting to help people,

help others cope with illness, and working in a caring occupation.

Secondly, from the results of this study and Blackwood (2017), another motivating factor for nursing students to volunteer is the reassurance for the safety of their families, including the availability of safe childcare and the provision of vaccines for their families. Furthermore, the majority (92%) of the Spanish medical and nursing students from Cervera-Gasch et al. (2020) study also expressed their concerns regarding the safety of their families in the event of a pandemic. The reason behind this may be because while volunteering, the nursing students would be putting their lives on the line and may not be able to return home to care for their families and children. If the volunteers were allowed to go home to rest, there is also the risk of infecting their families, which is why providing the family members of the volunteers with vaccine and prophylaxis may be required to ease the worries of the volunteers, hence increasing their willingness to volunteer (Cervera-Gasch et al., 2020).

Finally, guaranteeing the safety of the volunteers by providing personal protective equipment and giving access to volunteers have been found to promote volunteerism among student nurses. From the present study, 67.2% of the sample population expressed their concerns regarding their safety if they were to volunteer due to the contagious and deadly nature of the virus. To overcome this, providing access to vaccines and prophylaxis to the volunteers has been found to increase the willingness of student nurses to volunteer, as evidenced by Blackwood (2017). In addition to the provision of vaccines as a means of personal defence against the pandemic, providing the volunteers with Personal Protective Equipment has also been found to increase the willingness of nursing students to volunteer as it decreases the risk of the volunteers contracting the disease (Blackwood, 2017). With the provision of these limited health resources given to the volunteers as a priority, it increases the willingness of nursing students to volunteer during a disaster as they are given the tools to protect themselves from the deadly infection.

### Factors that inhibit volunteerism in nursing students

Similar to the presence of enabling factors, multiple factors inhibited volunteerism among student nurses, which have been grouped into family factors, personal safety, and knowledge.

From the results of this study, it was found that family was the biggest barrier for nursing students from volunteering during the COVID-19 pandemic, which included having the responsibility of dependent children (53.6%). Blackwood (2017) had similar findings, where willingness to volunteer and have dependent children were negatively correlated, indicating that having dependent children decreased the willingness of the participants from volunteering during a pandemic. This may be the reason behind safe reliable childcare being the highest enabler for nursing students to volunteer. Furthermore, fear for the safety of their families also inhibited volunteerism among



nursing students, as evidenced in the results of this study (65.0%). The results align with [Cervera-Gasch et al. \(2020\)](#), where 92% of their Spanish medicine and nursing students admitted that they were afraid of infecting their families. Moreover, [Blackwood \(2017\)](#) also had similar findings where 73.6% of their participants were less likely to volunteer due to the fear for the safety of their families.

Another barrier identified for willing to volunteer during the COVID-19 pandemic is fear of personal safety ([Blackwood, 2017](#); [Cervera-Gasch et al., 2020](#)). Out of the 72 participants in this study, only 57.5% of them were willing to volunteer during a pandemic due to fear of their safety. Similarly, only 50.9% of participants from [Blackwood \(2017\)](#) were willing to volunteer during an emergency due to the same reasons. Additionally, participants (38.9%) from [Cervera-Gasch et al. \(2020\)](#) also admitted that they were afraid of being infected by the deadly virus of COVID-19. The reason behind the concerns may be due to the high number of infected cases among the healthcare team, such as that in Spain, where 14% of the confirmed cases were health workers ([Iserson, 2020](#)).

Finally, the lack of disaster education has also been identified as an inhibiting factor for volunteerism among nursing students. This may be the reason behind the participants claiming that being a student also acts as a barrier, as they may feel that they are not confident enough and are unprepared to volunteer during such a critical situation. This is supported by [AlSaif et al. \(2020\)](#) where they found a positive correlation between willingness and mean total perceived-competence score. [Cervera-Gasch et al. \(2020\)](#) also found that 63% of their respondents admitted that they were not ready to attend patients during a pandemic as they did not feel confident to do so due to lack of required knowledge, which may even potentially risk the safety of the patients and the students, as reported by [Mortelmans et al. \(2015\)](#). Similarly, [O'Byrne et al. \(2020\)](#) also stated that 70% of their participants, consisting of American medical students, felt unprepared to participate during a pandemic before they commenced their disaster management elective; however, the number was reduced to 11% after their elective was completed.

### Strategies and recommendations

Therefore, to increase the willingness of nursing students to volunteer during an outbreak, institutions may need to introduce disaster management in their nursing curriculum to provide the students with the knowledge and prepare their students for future outbreaks.

Furthermore, the Ministry of Health could also contribute to increasing the willingness of university nursing students to volunteer during future disasters by providing adequate personal protective equipment, vaccination, and prophylaxis to ease the worries of the volunteers from contracting the virus. Moreover, if personal protective equipment is inadequate, and vaccination and prophylaxis are unavailable yet, the health ministry could provide staff houses for the volunteers to reduce their

contacts with their families, reducing the risk of spreading the virus to the families of the volunteers ([Astorp et al., 2020](#); [Martin-Delgado et al., 2021](#)).

Moreover, to overcome the concern of the volunteers for their dependent children at home, volunteers who have no background in healthcare could take the task of providing childcare assistance to the volunteers, as suggested by ([Lazarus et al., 2020](#)).

Future researchers have the potential to further this study by identifying the difference in volunteerism between university nursing students attending Universiti Brunei Darussalam and diploma nursing students attending Politeknik Brunei. Furthermore, researchers could further study the difference in results between degree nursing students from A-levels, post-diploma students, and in-service students.

### Implications of the study

The level of willingness to volunteer among student nurses in Brunei was high; however, the preparedness and readiness planning is still non-existent. Nursing students are a valuable resource that needs to be tapped. Therefore, proper and systematic training as a volunteer during disasters and pandemics should be part of the nursing curriculum and collaboration with nursing practitioners, particularly in their latest preparedness training nationally, regionally, or internationally.

### Limitation of the study

This study is subjected to non-response bias; though participants were recruited using the participant selection method, there were still chances that participants might refuse to participate when there was considerable refusal or non-responses in collected data (>10%), the results will be biased. To avoid non-response bias, the participants were given 2 to 3 reminders and informed about how valuable their contribution is and checking if the participants had completed the data during data collection. Moreover, the timing of the research may also act as a limitation due to the questionnaire being distributed when the COVID-19 situation was already stable in Brunei and no longer posed as a direct threat to the country.

### Conclusion

In conclusion, despite the lack of experience, knowledge, and dangers of working as a front-liner during the COVID-19 pandemic, nursing students were willing to volunteer to help alleviate the strain in staffing. A few factors were found to influence the willingness of nursing students to volunteer during the COVID-19 pandemic, such as marital status, year of study, altruism, family factors, personal safety, and knowledge. To increase the willingness of nursing students to volunteer during a future pandemic, institutions must consider including disaster management as part of their nursing course curriculum to help the students prepare for future disasters. Moreover, the Ministry of Health also has

to take into consideration providing safe reliable childcare, sufficient personal protective equipment, vaccination, and prophylaxis provision to the volunteers to help increase the willingness of university nursing students to volunteer in the future.

#### Declaration of Conflicting Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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#### Authors' Contributions

All authors made substantial contributions to the conception and design of the study, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content, agreed to submit to the current journal, and gave final approval of the version to be published.

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#### Data Availability Statement

Available upon reasonable request to the authors.

#### References

- AlSaif, H. I., AlDhayan, A. Z., Alosaimi, M. M., Alanazi, A. Z., Alamri, M. N., Alshehri, B. A., & Alosaimi, S. M. (2020). Willingness and self-perceived competence of final-year medical students to work as part of the healthcare workforce during the COVID-19 pandemic. *International Journal of General Medicine*, 13, 653-661. <https://dx.doi.org/10.2147%2FIJGM.S272316>
- Astorp, M. S., Sørensen, G. V. B., Rasmussen, S., Emmersen, J., Erbs, A. W., & Andersen, S. (2020). Support for mobilising medical students to join the COVID-19 pandemic emergency healthcare workforce: A cross-sectional questionnaire survey. *BMJ Open*, 10(9), e039082. <http://dx.doi.org/10.1136/bmjopen-2020-039082>
- Blackwood, K. (2017). *Factors that affect nursing students' willingness to respond to disasters or public health emergencies*. (Dissertation), Bachelor of Arts/Communication Arts Public Relations, University of West Florida, Pensacola, FL. Retrieved from [https://shareok.org/bitstream/handle/11244/299566/Blackwood\\_okstate\\_0664D\\_15281.pdf?isAllowed=y&sequence=1](https://shareok.org/bitstream/handle/11244/299566/Blackwood_okstate_0664D_15281.pdf?isAllowed=y&sequence=1)
- Cervera-Gasch, Á., González-Chordá, V. M., & Mena-Tudela, D. (2020). COVID-19: Are Spanish medicine and nursing students prepared? *Nurse Education Today*, 92, 104473. <https://dx.doi.org/10.1016%2Fj.nedt.2020.104473>
- Dyson, S. E., Liu, L., van den Akker, O., & O'Driscoll, M. (2017). The extent, variability, and attitudes towards volunteering among undergraduate nursing students: Implications for pedagogy in nurse education. *Nurse Education in Practice*, 23, 15-22. <https://doi.org/10.1016/j.nepr.2017.01.004>
- Gómez-Ibáñez, R., Watson, C., Leyva-Moral, J. M., Aguayo-González, M., & Granel, N. (2020). Final-year nursing students called to work: Experiences of a rushed labour insertion during the COVID-19 pandemic. *Nurse Education in Practice*, 49, 102920. <https://doi.org/10.1016/j.nepr.2020.102920>
- Gouda, P., Kirk, A., Sweeney, A.-M., & O'Donovan, D. (2020). Attitudes of medical students toward volunteering in emergency situations. *Disaster Medicine and Public Health Preparedness*, 14(3), 308-311. <https://doi.org/10.1017/dmp.2019.81>
- Hayter, M., & Jackson, D. (2020). Pre-registration undergraduate nurses and the COVID-19 pandemic: Students or workers? *Journal of Clinical Nursing*, 29(17-18), 3115-3116. <https://doi.org/10.1111/jocn.15317>
- Huapaya, J. A., Maquera-Afaray, J., García, P. J., Cárcamo, C., & Cieza, J. A. (2015). Knowledge, practices and attitudes toward volunteer work in an influenza pandemic: Cross-sectional study with Peruvian medical students. *Medwave*, 15(4), e6136-e6136. <https://doi.org/10.5867/medwave.2015.04.6136>
- Iserson, K. V. (2020). Augmenting the disaster healthcare workforce. *Western Journal of Emergency Medicine*, 21(3), 490-496. <https://dx.doi.org/10.5811%2Fwestjem.2020.4.47553>
- Lazarus, G., Mangkuliguna, G., & Findyartini, A. (2020). Medical students in Indonesia: An invaluable living gemstone during coronavirus disease 2019 pandemic. *Korean Journal of Medical Education*, 32(3), 237-241. <https://doi.org/10.3946/kjme.2020.165>
- Martin-Delgado, L., Goni-Fuste, B., Alfonso-Arias, C., De Juan, M. A., Wennberg, L., Rodríguez, E., . . . Martin-Ferreres, M. L. (2021). Nursing students on the frontline: Impact and personal and professional gains of joining the health care workforce during the COVID-19 pandemic in Spain. *Journal of Professional Nursing*, 37(3), 588-597. <https://doi.org/10.1016/j.profnurs.2021.02.008>
- McNeill, C., Alfred, D., Nash, T., Chilton, J., & Swanson, M. S. (2020). Characterization of nurses' duty to care and willingness to report. *Nursing Ethics*, 27(2), 348-359. <https://doi.org/10.1177/0969733019846645>
- Mortelmans, L. J. M., Bouman, S. J. M., Gaakeer, M. I., Dieltiens, G., Anseeuw, K., & Sabbe, M. B. (2015). Dutch senior medical students and disaster medicine: A national survey. *International Journal of Emergency Medicine*, 8(1), 1-5. <https://doi.org/10.1186/s12245-015-0077-0>
- Natan, M. B., Zilberstein, S., & Alaev, D. (2015). Willingness of future nursing workforce to report for duty during an avian influenza pandemic. *Research and Theory for Nursing Practice*, 29(4), 266-275. <https://doi.org/10.1891/1541-6577.29.4.266>
- O'Byrne, L., Gavin, B., & McNicholas, F. (2020). Medical students and COVID-19: The need for pandemic preparedness. *Journal of Medical Ethics*, 46(9), 623-626. <https://doi.org/10.1136/medethics-2020-106353>
- Patel, J., Robbins, T., Randeva, H., de Boer, R., Sankar, S., Brake, S., & Patel, K. (2020). Rising to the challenge: Qualitative assessment of medical student perceptions



- responding to the COVID-19 pandemic. *Clinical Medicine*, 20(6), e244-e247. <https://dx.doi.org/10.7861%2Fclinmed.2020-0219>
- Pogoy, J. M., & Cutamora, J. C. (2021). Lived experiences of Overseas Filipino Worker (OFW) nurses working in COVID-19 intensive care units. *Belitung Nursing Journal*, 7(3), 186-194. <https://doi.org/10.33546/bnj.1427>
- Quisao, E. Z. S., Tayaba, R. R. R., & Soriano, G. P. (2021). Knowledge, attitude, and practice towards COVID-19 among student nurses in Manila, Philippines: A cross-sectional study. *Belitung Nursing Journal*, 7(3), 203-209. <https://doi.org/10.33546/bnj.1405>
- Rasmussen, S., Sperling, P., Poulsen, M. S., Emmersen, J., & Andersen, S. (2020). Medical students for health-care staff shortages during the COVID-19 pandemic. *The Lancet*, 395(10234), e79-e80. [https://doi.org/10.1016/S0140-6736\(20\)30923-5](https://doi.org/10.1016/S0140-6736(20)30923-5)
- Swift, A., Banks, L., Baleswaran, A., Cooke, N., Little, C., McGrath, L., . . . Tomlinson, A. (2020). COVID-19 and student nurses: A view from England. *Journal of Clinical Nursing*. <https://dx.doi.org/10.1111%2Fjocn.15298>
- World Health Organization. (2020). *Cumulative number of confirmed human cases for avian influenza A(H5N1) reported to WHO, 2003-2020*. Retrieved from [https://www.who.int/publications/m/item/cumulative-number-of-confirmed-human-cases-for-avian-influenza-a\(h5n1\)-reported-to-who-2003-2020](https://www.who.int/publications/m/item/cumulative-number-of-confirmed-human-cases-for-avian-influenza-a(h5n1)-reported-to-who-2003-2020)
- World Health Organization. (2021). WHO Coronavirus (COVID-19) dashboard. Retrieved from <https://covid19.who.int/>
- Yonge, O., Rosychuk, R. J., Bailey, T. M., Lake, R., & Marrie, T. J. (2010). Willingness of university nursing students to volunteer during a pandemic. *Public Health Nursing*, 27(2), 174-180. <https://doi.org/10.1111/j.1525-1446.2010.00839.x>
- Yu, N.-Z., Li, Z.-J., Chong, Y.-M., Xu, Y., Fan, J.-P., Yang, Y., . . . Zhang, M.-Z. (2020). Chinese medical students' interest in COVID-19 pandemic. *World Journal of Virology*, 9(3), 38-46. <https://dx.doi.org/10.5501%2Fwjv.v9.i3.38>

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# Assessment of the quality of independent nursing practice in Indonesia based on total quality management indicators

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## Abstract

**Background:** The quality of management has become a problem and significant issue of the late decade in Indonesia's professional nursing practice. By implementing total quality management (TQM), the organization would identify a health organization system's performance to improve patient satisfaction and patient safety for independent nursing practice services.

**Objective:** This study aimed to assess the quality of independent nursing practice in Indonesia based on TQM indicators.

**Methods:** This study employed a sequential explanatory mixed methods design. Participants were 105 Chief Executive Officers (CEOs) of independent nursing practices who answered a TQM survey using The Malcolm Baldrige Criteria for Performance Excellence (MBCfPE). The quantitative responses were analyzed using SmartPLS version 3.0. For qualitative data, selected six participants from total respondents were interviewed to explore the participants' understanding of TQM. All the responses were transcribed and uploaded using NVIVO ver. 11 for thematic analysis.

**Results:** Leadership positively influenced strategic planning, customer attention, assessment analysis, and information management (focusing on personnel process management and efficiency) ( $p < 0.001$ ). In addition, process management indicated a positive influence on performance results ( $p < 0.001$ ). Interview transcriptions concentrated on the following themes that emerged, such as quality focus, service focus, human resource focus, performance result, leadership, service system design, strategic planning, and information system.

**Conclusion:** TQM with the adaptation of MBCfPE criteria improves the organization's performance and serves as a strategic component in assessing and implementing sustainability change. The findings of this study can be used by CEOs of independent nursing practices for continuous improvement. In addition, the results serve as a basis for the ministry of health for accreditation to ensure the high quality of health care services.

## Keywords

total quality management; nursing services; personnel management; independent nursing practice; Indonesia

There is a growing awareness that quality management is an essential component at all organization's levels (Lauring & Selmer, 2012). Quality management as a method is defined as a series of coordinated activities and functions to direct and control the organization to continue improving its effectiveness and efficiency (Kalarachchi, 2010). To

introduce a quality management system based on its strategy, goals, structure, size, products, and services, organizations must make rational decisions (Manghani, 2011). This also extends to the health industry.

Total Quality Management (TQM) is, in general, a management philosophy used by companies that aim to

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improve their business market productivity and competitiveness (Lauring & Selmer, 2012). TQM quality indicators include the engagement and participation of senior management, empowerment, and corporate culture (Kaluarachchi, 2010). In a seminal commentary by Andreoli (1992), she opined that TQM unifies and integrates the innovative system of managerial and organizational activities toward a culture of excellence and quality services.

Moreover, the concept of quality is not a relatively new concept to nursing. Undeniably, even before the professionalization era of nursing, quality has been coined as a pillar contributing to patient and organizational outcomes. A recent study by Wang et al. (2019) explored the nexus among total quality management, work values, employee satisfaction, and patient-safety-culture attitudes. Their findings revealed that TQM implementation benefitted many nurses in various ways and improved patient-safety culture. For this reason, it is imperative to continuously integrate the core concepts of TQM not only in the conventional nursing practice but also in the independent nursing practice.

Nursing as a profession and discipline in Indonesia is promising. For this reason, the Indonesian National Nurses Association mentioned that the ever-changing landscape of the healthcare system demands to heighten every nurse's level of competencies, expertise, and field of specialization. This was highlighted by Widasari Sri Gitarja as a prime mover of the independent nursing clinic "Wocare Center". However, due to the lack of understanding about the legal components and other areas of independent nursing practice, many Indonesian nurses are reluctant to immerse themselves in a highly structured and autonomous approach (Wocare, 2020). Moreover, the independent nursing practice requires a constant scaffolding of the process of quality integration into its nomenclature.

### Independent Nursing Practice Context in Indonesia

The independent nursing role is described as any part of nursing practice for which the nurse is solely responsible, working independently and without guidance from other disciplines (Musker, 2011). Because of its restructuring, focus on preventive health care, and public engagement in holistic modalities, new opportunities for nurses to pursue independent nursing practice is developing due to the overarching healthcare system's needs and demands. In some areas, because of its consolidation, emphasis on preventive health care, and public interest in holistic modalities. Independent nursing practice is a tiny but vital component of the healthcare system that gives the public more options in terms of healthcare access (Porter & Lee, 2021). According to Wocare (2020), there is a need to strengthen the independent nursing practice because it offers a fortress of opportunities for nurses to exercise accountability, integrity, and autonomy. This advocacy by Wocare as an organization is enshrined in the Indonesian Nursing Law (Law No. 38 of 2014) that also encourages organizing a systematic approach to patient care grounded

on evidence-based interventions along with interprofessional collaborative practice (Government of Indonesia, 2014).

Types of services provided at the independent nursing practice in Indonesia include wound care, stoma care, continence care, maternity care, mental care, or complementary care. For instance, the practice of wound care has proliferated in Indonesia that offers independent practice to patients who need wound care management at the confines of the patients' homes. In the current practice, almost 600 nurses have been trained and increased their skills in various nursing procedures (Wocare, 2020). However, there is a dearth of evidence that explores that quality integration into patient care, albeit implied within nursing practice. For this reason, this study was conducted to evaluate the quality of independent nursing practice in Indonesia based on the TQM framework. This study hopes to offer baseline information about the salient outcomes that TQM delivers that further improves patient outcomes.

### Total Quality Management Indicators/Principles

Total quality management (TQM) is a formal framework for including the entire enterprise in preparing and implementing a performance improvement process to achieve and fulfill consumer expectations (Sadikoglu & Olcay, 2014). To determine the current state of TQM implementation, each organization must review and assess itself (self-evaluation and self-assessment) to provide feedback in the form of new strategies for future TQM implementation.

TQM within the purview of the healthcare environment defined as the satisfaction of patients, doctors, nurses, and suppliers, and other interested groups, achieved by implementing effective planning, programs, policies, and strategies, and human and all other assets (i.e., soft issues) efficiently and continually within a hospital context (Talib et al., 2011). In Independent nursing practice, TQM has become a well-accepted term. TQM preserves and increases efficiency at reduced rates, but it necessitates a cultural shift for the institution and nursing unit to accept it (Mun et al., 2013). Several studies emerged in the corpus of literature that integrates TQM in nursing practice in Indonesia, especially in a hospital setting (Manurung et al., 2017; Sintari & Novitasari, 2020), but due to the paucity of evidence in Indonesia's independent nursing practice; this study came to fruition.

Because this quality management system strives to improve the company's entire performance, the effectiveness of TQM adoption can be determined through organizational performance measurement (Berglund et al., 1999). One of the organizational performance measuring methodologies in this research is Malcolm Baldrige for Performance Excellence (MBCfPE). The Malcolm Baldrige Criteria for Performance Excellence (MBCfPE) is a quality management measuring system based on a self-assessment approach to an organization's performance (National Institute of Standard and Technology (NIST), 2020). Approximately 100 organizations throughout the



world have employed this strategy. Leadership, strategic planning, customer focus, measurement, information and knowledge analysis and management, workforce focus, operations focus, and results are the seven criteria used by MBCfPE to assess the state of an organization (National Institute of Standard and Technology (NIST), 2020).

## Methods

### Study Design

A sequential explanatory design was used in this study: a two-pronged approach in data collecting and data analysis. The data are collected over a period of time in two consecutive phases. Thus, we first collected and analyzed the quantitative data. Qualitative data were collected in the second phase of the study and related to the quantitative phase outcomes (Creswell, 2012). In this study, we collected the data about the TQM implementation followed by an in-depth interview with key informants to elicit the common issues and challenges in the identified TQM implementation and its process.

### Participants and Study Setting

The participants were selected using a purposive sampling from DKI Jakarta, Bogor City, Bogor Regency, Depok City, Tangerang, Bekasi City, and Bekasi Regency (Jabodetabek). A total of 105 respondents met the inclusion criteria: Chief Executive Officer (CEO) of the independent clinic, engaged in independent nursing practice, ages between 18 and 65, with at least one year experience in the current position, and proficient in reading and speaking Bahasa and English. After the quantitative data had been collected, we selected informants based on similar inclusion criteria. However, due to the proximity, one key informant was identified as a representative of each city or district. A total of six informants agreed to be interviewed.

### Data Collection

#### *Quantitative strand*

During the quantitative phase of data collection, the eligible participants based on the inclusion criteria were provided with self-administered questionnaires through email correspondence detailing the voluntary participation. Two sets of questionnaires were attached as documents in the emails. Part I described the profile characteristics of the participants, including age, gender, the highest level of education, duration of nursing practice, type of case, monthly income, and a number of monthly visits for two months. Part II asked the participants to rate their agreement using a 4-point Likert scale (1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly Agree). The primary instrument used was adapted from The Malcolm Baldrige Health Care Criteria for Quality Service, consisting of 67 items. The questionnaire was grouped into process criteria (criteria 1-6) and outcome criteria (criteria 7). The scoring system is based on the MECfPE score criteria. The MBCfPE criteria provide a systemic approach to achieving operational excellence and overcoming

healthcare quality-measurement challenges (National Institute of Standard and Technology (NIST), 2020). The questionnaire was translated into the Indonesian language. After the quantitative data were collected, the individual responses from the Google forms were transported and cleaned using Microsoft Excel before data were uploaded to the computer-assisted software.

#### *Qualitative strand*

The qualitative phase of data collection was conducted a week after the completion of Phase I. During Phase II, the key informants were invited through their emails detailing the study's purposes. After they have agreed on their voluntary participation, another invitation was sent to provide the information about the interview process. An in-depth interview was conducted via Zoom because of the limitation of physical restriction at the COVID-19 pandemic. We requested to record the interview and agreed by the key informants. Afterward, the audio-video recorded interview was transcribed in a word file document before those narratives were uploaded in NVIVO Plus ver. 11. This qualitative software facilitated the data analysis. The in-depth interview was to explore various issues about the implementation of TQM within nursing independent nursing practice.

### Data Analysis

#### *Quantitative strand*

Descriptive statistics were employed for the demographic information with Microsoft Excel. The quantitative responses were analyzed using SmartPLS version 3.0. The results of factor analysis, multiple hierarchical regression, and partial least square structural equation modeling with statistically significant was set value T-statistics <1.65 (Hair et al., 2019).

#### *Qualitative strand*

To guide the data analysis of the comprehensive interview, qualitative content analysis was used. First, the transcripts were read. The words and sentences were categorized as sample units, which were then simplified and labeled with a code and organized into their respective groups, containing information relevant to the study questions. The NVivo ver 11 was used during the process of schematization. Disagreements among the authors in the coded themes were addressed through constant member checks and succeeding meetings to draw a consensus.

### Ethical Consideration

This research was approved by The Indonesian Wound Care Clinician Association (0321/SK/InWCCA/ X/2020). The data were permanently deleted after completing data collection. Before data collection, each respondent has signed informed consent. Also, the respondents were informed about their voluntary participation, may partially or wholly withdraw during the study, their identity was anonymous, and no personal identification information was retrieved to ensure confidentiality.

## Results

### Quantitative Results

Table 1 shows that 34% of the respondent from Jakarta. The majority were males (58.6%) and completed bachelor's

degree (54%). Most types of service were wound care (57.5%), with diabetic ulcer care (78%). Most of them have been working for 1 to 5 years (55.2%). In addition, the majority of the participants had a total income of less than 10 million (51.7%) and less than ten visits.

**Table 1** Profile characteristics (*N* = 105)

Profile characteristics	%
<b>Area of practice</b>	
Jakarta	34
Tangerang	13
Depok	17.2
Bogor	19
Bekasi	16.8
<b>Sex</b>	
Male	58.6
Female	41.4
<b>Education level</b>	
Diploma	16.1
Bachelor	54
Magister	24
Specialist	5.7
<b>Type of services</b>	
Wound care	57.5
Wound, ostomy, and continence care	32.3
Nurse specialist	2.2
General nurse	8.1
<b>Type of cases</b>	
Diabetic ulcer	78.2
Cancer wound	7
Pressure injury	7.8
Acute wound	7
<b>Experience</b>	
<1 year	11.5%
1-5 years	55.2%
6-10 years	24.1%
>10 years	9.2%
<b>Total income monthly (Rupiah)</b>	
<10 million	51.7%
10 – 50 million	36.9%
51 – 100 million	5.7%
>100 million	5.7%
<b>Visited per month</b>	
<10 visit	52.9%
51 – 100	34.5%
101 – 200	5.7%
>200	6.9%

Table 2 shows the mean and factor loadings for each measurement object's seven factors and each factor's ratings for the Average Variance Extract (AVE). The mean value of customer focus, process management, and performance outcomes were all included in the 'always' category, with average scores ranged between 3.26-4.00. This demonstrates that, with the correct procedure, independent nursing quality was high. In the frequent category, the variables of leadership, strategic planning, measurement analysis, knowledge management, and staff focus were included, with the mean value from 2.51 to 3.25.

AVE value for each variable met the validity criteria, which the variables of leadership, strategic planning, customer focus, measurement of knowledge management analysis, staff focus, process management, and performance results with each value AVE were 0.66, 0.70, 0.61, 0.70, 0.78, 0.63 and 0.60, higher than the limit value 0.5 (good convergent validity value) (Hair et al., 2019). Furthermore, the results revealed a high correlation coefficient through the structural model through the coefficient of determination ( $R^2$ ) and the multicollinearity test (see Figure 1).

**Table 2** Validity convergent actual: Mean, factor loading & AVE

Code	Items	Mean	Factor loading	AVE	Results
<b>LS</b>	<b>Leadership</b>	<b>3.22</b>		<b>0.66</b>	<b>Agree</b>
LS 1	Create an independent nursing practice vision, mission, and organizational principles	3.28	0.79		
LS 2	Disseminate the vision, mission, and organizational principles of the nursing independent nursing practice organization	3.13	0.80		
LS 5	Encourage workers to continue to improve and improve productivity	3.43	0.84		
LS 7	Supervise the execution of the responsibilities of subordinates regularly	3.14	0.89		
LS 8	Analyze the efficiency of subordinates	3.18	0.89		
LS 9	Use assessment results as a basis for the provision of incentives and punishments	3.06	0.78		
LS 10	Implement an internal and external evaluation (audit) scheme for results	2.90	0.71		
LS 11	Encourage workers to record any action	3.31	0.85		
LS 12	Encourage staff to perform highly ethical services	3.52	0.76		
LS 13	Render care attention to the influence of nursing independent nursing practice on the community around the independent nursing practice.	3.15	0.78		
LS 14	Facilitate efforts to select priority maintenance/improvement services	3.30	0.78		
<b>SP</b>	<b>Strategic Planning</b>	<b>3.18</b>		<b>0.70</b>	<b>Agree</b>
SP 1	Define the independent nursing practice organization's goals and objectives	3.16	0.86		
SP 2	Develop the independent nursing practice organization's strategic priorities based on patient/customer needs	3.29	0.86		
SP 3	Analyze independent nursing practice's internal and external conditions in compiling the independent nursing practice organization's strategic planning	3.09	0.87		
SP 4	Formulate short and long-term programs to meet policy priorities for independent nursing practice	3.11	0.80		
SP 5	Determine superior service programs that are vital independent nursing practice activities	3.28	0.87		
SP 6	Disseminate job schedules to all staff of independent nursing practice workgroups/ facilities	3.19	0.78		
SP 7	Determine the tools required to facilitate the efficient execution of work plans	3.18	0.83		
SP 8	Determine the method of tracking and reviewing the implementation of work plans	3.2	0.83		
<b>CF</b>	<b>Customer Focus</b>	<b>3.45</b>		<b>0.61</b>	<b>Strongly Agree</b>
CF 2	Determine patients' needs, aspirations, and preferences to ensure the quality of independent nursing practice programs for nursing	3.51	0.82		
CF 3	Use social media to listen to patient/client preferences and feedback about nursing independent nursing practice facilities	3.16	0.76		
CF 4	Measure the patient/service satisfaction standard	3.27	0.67		
CF 5	Informed to each unit of patient problems to be able to determine the root cause	3.43	0.87		
CF 6	Explain the introduction of quality improvement in independent nursing practice	3.69	0.77		
CF 7	Provide timely and specific service to the patient/client status requirements	3.63	0.79		
<b>MKMA</b>	<b>Measurement of Knowledge Management Analysis</b>	<b>2.98</b>		<b>0.70</b>	<b>Agree</b>
MKMA 1	Measure the performance in each working unit	3.01	0.85		
MKMA 2	Use results of the performance measurement to assist decision-making in improving service quality	3.01	0.89		
MKMA 3	Integrate information management system of data and information on private nursing practice services	2.84	0.83		
MKMA 4	Update service information	3.08	0.86		
MKMA 5	Ensure employees or patients/customers can instantly and comfortably obtain data and information from independent nursing practice	3.01	0.83		
MKMA 6	Combine data and information from private nursing practice with service efficiency metrics	2.95	0.88		



Table 2 (Cont.)

SF	Staff Focus	3.23		0.78	Strongly Agree
SF 1	Develop staff capacity and skills to meet organizational performance objectives	3.18	0.87		
SF 2	Motivate staff to create creativity in the provision of services	3.15	0.86		
SF 3	Create a secure work environment for workers	3.39	0.89		
SF 6	Receive bonuses for high employee success and incentives	3.17	0.89		
SF 7	Ensure each worker actively explores opportunities to improve their ability to deliver services	3.16	0.89		
SF 8	Ensure each employee is granted the authority to complete tasks according to their position and capacity	3.34	0.88		
PM	Process Management	3.41		0.63	Strongly Agree
PM 3	Design the operation phase in private nursing practice according to the patient/customer interests	3.48	0.76		
PM 4	Supervise carrying out of operations/programs	3.19	0.79		
PM 6	Design operation protocols to benefit from the independent nursing practice	3.32	0.81		
PM 9	Renew the rhythm of the service process to make it more reliable and productive	3.37	0.84		
PM 10	Ensure professionals and specialists in their fields carry out each service	3.54	0.80		
PM 11	Allow attempts to continually enhance or raise the level of care to patients/consumers	3.54	0.77		
PM	Performance Result	3.48		0.60	Strongly Agree
PR 1	Ensure each care provided is based on the patient/customer's needs and conditions.	3.64	0.81		
PR 2	Ensure officers carry out each service according to the education/expertise possessed	3.60	0.85		
PR 3	Ensure operations in compliance with the standard operating procedures	3.61	0.78		
PR 5	Handle service period (waiting for time or duration of treatment) for patients/clients effectively	3.50	0.85		
PR 7	Enhance employee satisfaction in the execution of their jobs	3.38	0.77		
PR 8	Reduce delays or cancellations of patient/client services	3.18	0.54		

Note: LS: Leadership, SP: Strategic Planning, CF: Customer Focus, MKMA: Measurement of Knowledge Management Analysis, SF: Staff Focus, PM: Process Management, PR: Performance Result

Table 3 shows the significant influences among the MBCfPE constructs. It can be gleaned in the table that leadership positively influences strategic planning, customer attention, assessment analysis, and information

management (focusing on personnel process management and efficiency), while process management indicates a positive influence on performance results

Table 3 Path coefficients bootstrapping (Mean, SD, T-Values)

Hypothesis	Path Coefficients	Original Sample (O)	Sample Mean (M)	SD	T Statistics ( O/SD)	P-values
H1a	LS -> SP (X1a)	0.81	0.82	0.04	19.01	<0.001*
H1b	LS -> CF (X1b)	0.59	0.60	0.07	8.15	<0.001*
H1c	LS -> MKMA (X1c)	0.70	0.70	0.06	12.27	<0.001*
H1d	LS -> SF (X1d)	0.81	0.80	0.04	18.11	<0.001*
H1e	LS -> PM (X1e)	0.57	0.58	0.09	6.01	<0.001*
H1f	LS -> PR (X1f)	0.28	0.27	0.166	1.7	0.085
H2	SP -> PR	-0.23	-0.24	0.15	1.48	0.139
H3	CF -> PR	0.11	0.11	0.13	0.85	0.393
H4	MKMA -> PR	-0.004	-0.017	0.13	0.03	0.976
H5	SF -> PR	0.10	0.11	0.14	0.70	0.480
H6	PM -> PR	0.57	0.60	0.11	4.89	<0.001*

Note: LS: Leadership, SP: Strategic Planning, CF: Customer Focus, MKMA: Measurement of Knowledge Management Analysis, SF: Staff Focus, PM: Process Management, PR: Performance Result

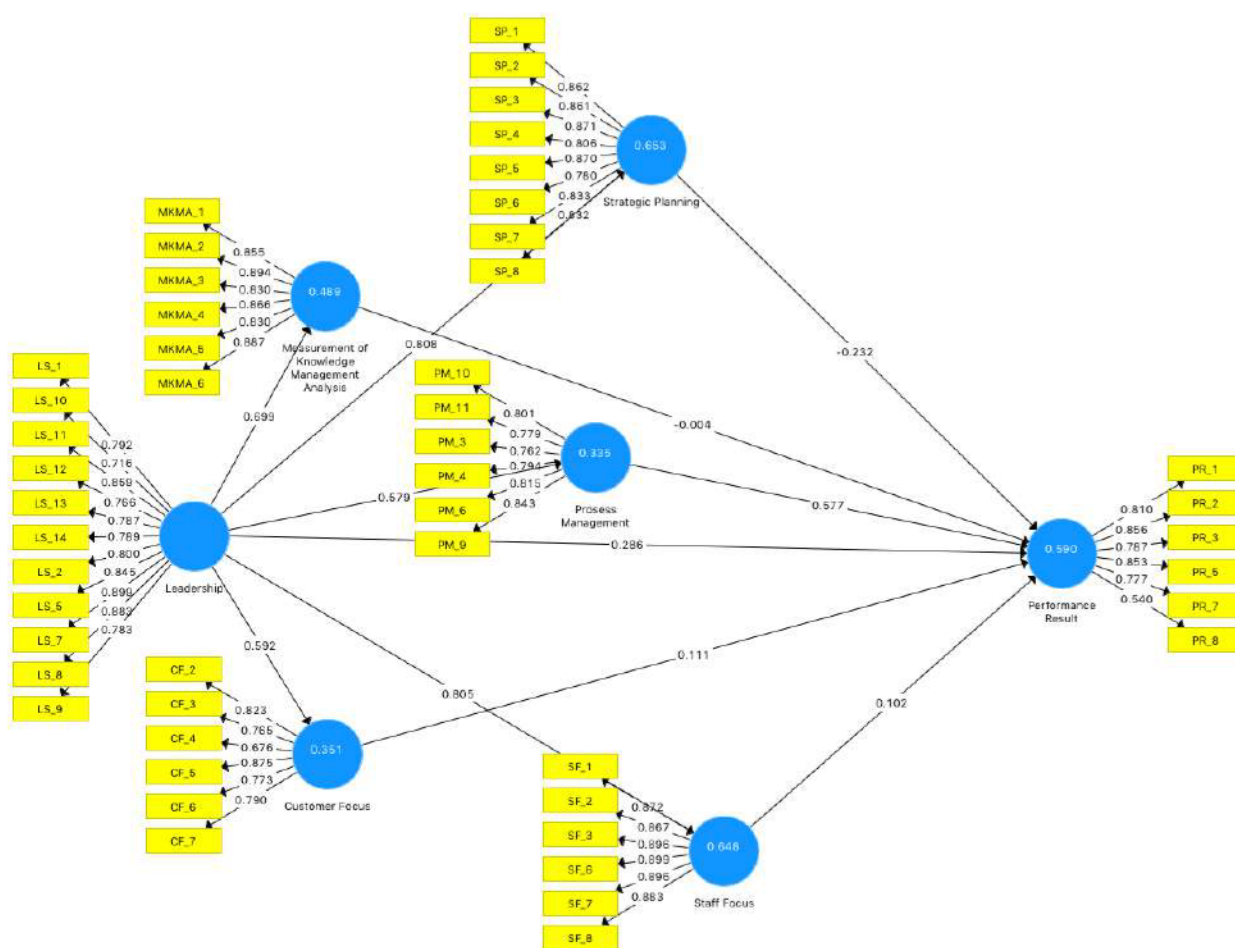


Figure 1 Path model algorithm

### Qualitative Results

Based on the analysis, eight themes emerged from the key informants' narratives:

#### Theme 1: Quality focus

- It is more about the performance we are doing [...] the family really wants to know about the wound treatment. With this, the patient and the family members would have more faith in how the treatment is done. If we certainly determine all [about the treatment], we often rely on the patient's view. The standard of service [or care] must be quality (Informant ID-6)

#### Theme 2: Service focus

- There is also a decline among patients who visit the clinic [perhaps] due to the pandemic. More often, [in fact], most patients, if not all, will ask for home care management. Through this approach, nurses can [eventually] meet the patients' needs and expectations (Informant ID-5)
- [Now], the patient would always expect the service providers [...] to interact with them. This is what we always do to build good and dynamic, closely knitted

interactions while we remain focused based on patient's needs, demands, and expectations (Informant ID-4)

#### Theme 3: Human resource focus

- In our case, we focus on the people [our employees] because we believe in their competence and expertise levels. We plan to establish a professional clinician network for case evaluations. We also have in mind to engage in local conferences (Informant ID-1)
- I make sure that every employee is equipped with competence through training and development (Informant ID-3)

#### Theme 4: Performance result

- By conducting briefings with supervisors and colleagues, we maximize efficiency. Indeed, because of their contact with patients and families, the most important factor in improving care is to enhance effective communication either face-to-face or virtually (Informant ID-5)
- Why do I give the origin of the name Blessing Care? Because I want to focus on nursing, this is also one way

*to share the blessing to others, knowing that what I have for my employees: they are all well-performing (Informant ID-6)*

#### **Theme 5: Leadership**

- *It is our shared aim to strengthen independent practice across the country. However, this vision requires leadership coupled with vision and purpose (Informant ID-2)*
- *[Well]... I think the highest decision is mine [...], but I do not make my own choices. I consult others still to come up with the best decisions for the team and with the team (Informant ID-3)*

#### **Theme 6: Service system design**

- *I think system design within the service you provide really matters [...]. It is essential for the standard of service to sustain or improve the quality that already exists [or] may need further improvements (Informant ID-6)*

#### **Theme 7: Strategic planning**

- *The strategies that have been compiled do not comply with policies, so we need to intensify our approaches to planning (Informant ID-1)*

#### **Theme 8: Information system**

- *[...] but now, maybe in a few months, we can integrate an information system that will be patient-focused (Informant ID-1)*
- *The current documentation needs a revisit or even a new platform such as WhatsApp, where most patients are connected. This makes the transmission or retrieval of information becomes easier (Informant ID-4)*

## **Discussion**

### **Summary of the Findings**

The present study showed that leadership positively influences the following domains: strategic planning, customer satisfaction, assessment analysis, and information management, focusing on personnel process management and efficiency. Leadership remains a precursor to the effective adoption of TQM in many healthcare organizations. Nursing leaders continue to uphold the highest quality standards of patient care to ensure that the service delivery and provision of care are fully achieved by every nursing unit member and meet their expectations (Balasubramanian, 2016). Nursing leaders should continue to serve as role models for newly admitted nurses to the healthcare organization to ensure they develop a sense of belonging and organizational citizenship. These greenhorn nurses are considered a path of continuity of similar leadership exemplified by the nursing leaders they considered role models.

On the other hand, leadership is also recognized as a bridge that connects for effective strategic planning that strengthens the sense of direction what the nursing unit

wants to achieve. Nursing leaders must develop their functional and adaptive capacity to the ever-changing status and demands of the health systems. In this regard, the nursing unit, along with its practice, can be more responsive to future institutional needs and patient demands. Many hospitals worldwide place a high value on customer or patient satisfaction because this becomes an indicator of quality service delivery and tangible patient and organizational outcomes (Manurung et al., 2017). It builds and heightens patient loyalty and patient intimacy, which trust and confidence in service delivery are ensured.

Moreover, it should also be heightened to provide a continuous mechanism that evaluates the patient care and provision of care by the nurses, whether in healthcare settings or independent nursing practice (Porter & Lee, 2021). In a similar vein, process management is a positive indicator of performance management indicated in this study. This purport the process mechanism must be upheld, reviewed, and revisited periodically to ensure that it achieves a great extent of performance and perceived quality care by nurses. Owing to the thematic analysis, eight themes emerged from the participants' narratives, including *quality focus, service focus, human resource focus, performance results, leadership, service system design, strategic planning, and information system*.

Sugandini and Wendry (2017) stated that customer satisfaction and loyalty would increase if an organization can handle complaints effectively on the first contact. Information from customers can be done by conducting regular satisfaction surveys or placing a suggestion box in the service room. The expectations and desires of customers can be read by the leaders compiled. This is done in addition to being able to identify the desires, expectations, and level of acceptance of patients/customers for health services in independent nursing practice, as well as to give a positive signal that in independent nursing practice has excellent attention and concern for patients/customers and creates a strong partnership relationship. Both with patients/customers to improve service processes.

According to the Malcolm Baldrige Assessment (National Institute of Standard and Technology (NIST), 2020), leadership is how top leaders can direct and sustain the organization and set its vision, principles, and performance expectations. Leadership is a component of quality control practices for improving operational performance, and that there is no question about organizational performance. Leadership is one of the main quality management practices, a critical factor that influences and plays an essential role in successfully implementing quality management in an organization (Gunawan et al., 2019), including private nursing practice.

The interviews with informants showed that setting the hospital's vision and mission can guide all employees in carrying out their duties. A clear, logical vision and mission with inspirational values are a source of fundamental strength in achieving goals organization (Lauring & Selmer, 2012). However, some informants have not yet



disseminated the vision and mission of practicing self-employment to all employees as an organization's goal.

As a form of commitment in implementing quality management, hospital leaders must also be able to create a sound (two-way) communication system with all employees where the flow of information is applied top-down and bottom-up (Kaluarachchi, 2010; Alolayyan et al., 2011). Furthermore, in connection with service process standards, especially amid a pandemic, COVID-19 must have compiled and developed a standard service document (SPO) (health protocol) as a guideline in carrying out actions/services for patients amid the COVID-19 pandemic, as well as establishing a service process flow so that it can be more efficient so as not to violate health protocols.

In a previous study conducted by Luring and Selmer (2012), customers' reluctance to direct their hopes and desires to officers could be caused by worry, the possibility that they might get a sour face from the officers. In solving organizational problems, finding the root of the problems is needed. Therefore, in this case, a management system in independent nursing practice is suggested to improve and monitor services. The results of patients' or customers' responses for improvement continue to be considered in quality for better service in the future.

#### Implication for Nursing Management and Practice

TQM is used by many disciplines to provide clients with reliable, accurate, accessible, timely, appropriate, and robust resources. Many healthcare providers have implemented TQM, which has helped increase cost management, quality, and efficacy of services. To satisfy the demands of different stakeholders and clients, nursing practice in Indonesia should incorporate TQM and other quality models into its structure. Among practicing individual nursing practitioners, there is an interconnected, linked, and collaborative network and linkage. TQM is needed to improve the quality and efficacy of services, adapt to changing environments, respond quickly to patient needs, and allow workers to be more active in work processes and decision-making. The findings of this study can also be used to improve the quality of health care and continuous improvement for CEOs of independent nursing practices. Furthermore, it is expected that the study results can be used by the government, especially the Ministry of Health, as the basis for accreditation to ensure the high quality of health care services.

#### Limitation of the Study and Future Recommendations

The limited sample size representing the CEOs of many independent nursing practices in Indonesia is considered a limitation of this study. In addition, the implementation of standards was not demonstrated in this study by document observations. Nevertheless, this study is significant even though it only describes the state of nursing service quality by evaluating the influence or relationship variables. Future research should pay more attention to this topic. More research is needed to extend our understanding of the constructs used in this study by exploring them in different

ways. Future research may look into the role of leadership, strategic planning, customer focus, measurement, analysis, and knowledge management, workforce focus, process management, and result performance in various service settings separately or in combination.

#### Conclusion

In conclusion, the independent nursing practice in Indonesia performed well based on MBCfPE criteria in the study. To obtain a systematic view of service quality management and performance in independent nursing practice, this research work aligns internal and external service quality. TQM adoption by independent nursing practice resulted in safe, effective, efficient, timely, relevant, and comprehensive service delivery to various stakeholders. In a similar vein, TQM has been adopted primarily by many nursing institutions in their independent nursing practice, contributing to improved cost-containment, efficiency, and service effectiveness. Thus, it is recommended that independent nursing practices in Indonesia continue to integrate TQM and other quality models into their system to meet various stakeholders' demands. However, such integration requires conscientious and collaborative efforts among nursing professionals and practitioners. An informed, connected, and adaptive network and linkage among the independent nursing practice will be required.

#### Declaration of Conflicting Interest

The authors declare no conflict of interest.

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None.

#### Authors' Contributions

DS and PL did the conception of this research. DS drafted the manuscript and collected data. PL and CPT contributed to the data analysis and manuscript development. Final approval of the version to be published was granted by all authors.

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#### Data Availability Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

## References

- Alolayyan, M. N., Ali, K. A. M., & Idris, F. (2011). The influence of total quality management (TQM) on operational flexibility in Jordanian hospitals: Medical workers' perspectives. *Asian Journal on Quality*, 12(2), 204-222. <https://doi.org/10.1108/15982681111158751>
- Andreoli, K. (1992). Total quality management--a new culture. *Journal of Professional Nursing*, 8(2), 72. [https://doi.org/10.1016/8755-7223\(92\)90065-7](https://doi.org/10.1016/8755-7223(92)90065-7)
- Balasubramanian, M. (2016). Total quality management [TQM] in the healthcare industry--challenges, barriers and implementation developing a framework for TQM implementation in a healthcare setup. *Science Journal of Public Health*, 4(4), 271. <https://doi.org/10.11648/j.sjph.20160404.11>
- Berglund, M., Laarhoven, P. v., Sharman, G., & Wandel, S. (1999). Third-party logistics: Is there a future? *The International Journal of Logistics Management*, 10(1), 59-70. <https://doi.org/10.1108/09574099910805932>
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Boston, MA: Pearson.
- Government of Indonesia. (2014). *Indonesian Nursing Law (Law No. 38 of 2014)* Retrieved from <https://peraturan.bpk.go.id/Home/Details/38782/uu-no-38-tahun-2014>
- Gunawan, J., Aungsueroch, Y., & Fisher, M. L. (2019). Competence-based human resource management in nursing: A literature review. *Nursing Forum*, 54(1), 91-101. <https://doi.org/10.1111/nuf.12302>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Kaluarachchi, K. (2010). Organizational culture and total quality management practices: A Sri Lankan case. *The TQM Journal*. <https://doi.org/10.1108/17542731011009612>
- Lauring, J., & Selmer, J. (2012). Knowledge sharing in diverse organizations. *Human Resource Management Journal*, 22(1), 89-105. <https://doi.org/10.1111/j.1748-8583.2010.00158.x>
- Manghani, K. (2011). Quality assurance: Importance of systems and standard operating procedures. *Perspectives in Clinical Research*, 2(1), 34. <https://doi.org/10.4103/2229-3485.76288>
- Manurung, J. M., Oktamiati, P., Bachtiar, A., Junadi, P., Rijadi, S., & Muhammad, S. (2017). Kajian implementasi mutu dengan pendekatan integrasi six sigma dan TQM melalui penilaian Malcolm Baldrige di rumah sakit Charitas Palembang [Integration six sigma and TQM through Malcolm Baldrige assesment in Charitas Palembang Hospital]. *Jurnal ARSI (Administrasi Rumah Sakit Indonesia)*, 3(2), 127-138. <http://dx.doi.org/10.7454/arsi.v3i2.2218>
- Mun, T. W., Ghani, A., & Faizal, M. (2013). Continuous improvement in nursing education through Total Quality Management (TQM). *Journal of Education and Learning*, 7(4), 193-198. <https://doi.org/10.11591/EDULEARN.V7I4.192>
- Musker, K. (2011). Nursing theory-based independent nursing practice: A personal experience of closing the theory-practice gap. *Advances in Nursing Science*, 34(1), 67-77. <https://doi.org/10.1097/ANS.0b013e31820944b1>
- National Institute of Standard and Technology (NIST). (2020). *Baldrige excellence framework: Proven leadership and management practices for high performance*. USA: NIST Publication.
- Porter, M. E., & Lee, T. H. (2021). Integrated practice units: A playbook for health care leaders. *NEJM Catalyst Innovations in Care Delivery*, 2(1). <https://doi.org/10.1056/CAT.20.0237>
- Sadikoglu, E., & Olcay, H. (2014). The effects of total quality management practices on performance and the reasons of and the barriers to TQM practices in Turkey. *Advances in Decision Sciences*, 2014, 537605. <http://dx.doi.org/10.1155/2014/537605>
- Sintari, M. N., & Novitasari, A. W. (2020). Hospital's performance measurement with Malcolm Baldrige method. *Journal of Public Health Research and Community Health Development*, 3(2), 108-119.
- Sugandini, D., & Wendry, B. (2017). Influence of quality relationship and satisfaction on loyalty: Study on supplier in Indonesia. *Journal of Business & Retail Management Research*, 11(4), 46-51. <https://doi.org/10.24052/jbmr/v11is04/loqrasolsosii>
- Talib, F., Rahman, Z., & Azam, M. (2011). Best practices of total quality management implementation in health care settings. *Health Marketing Quarterly*, 28(3), 232-252. <https://doi.org/10.1080/07359683.2011.595643>
- Wang, K. Y., Chou, C. C., & Lai, J. C. Y. (2019). A structural model of total quality management, work values, job satisfaction and patient-safety-culture attitude among nurses. *Journal of Nursing Management*, 27(2), 225-232. <https://doi.org/10.1111/jonm.12669>
- Wocare. (2020). *Report of Wocare care clinician 2020*. Retrieved from <https://www.wocare.co.id>

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# Illness cognition and depression among patients with coronary heart disease

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## Abstract

**Background:** Depression is a significant predictor of the quality of life among patients with coronary heart disease. Therefore, it is essential to explore the factors associated with depression. Illness cognition is considered one of the factors affecting depression. However, the relationship between illness cognition and the incidence of depression among Indonesian patients have not been widely investigated.

**Objective:** This study aimed to investigate the correlation between illness cognition, consisting of the acceptance, perceived benefits, and helplessness variables, and depression in patients with coronary heart disease.

**Methods:** This study employed a correlational research design with a total of 106 patients undergoing treatment at a hospital in West Java, Indonesia, selected using convenience sampling. Data were collected using a demographic questionnaire, Beck-Depression Inventory-II (BDI-II), and ICQ (Illness-Cognition Questionnaire). Data were analyzed using mean (SD), median, frequency distribution, and Spearman-rank.

**Results:** 72% of respondents had no depression. Nevertheless, mild, moderate, and major depression suffered by 15%, 9%, and 4% of respondents, respectively. In terms of illness cognition, patients scored higher within the perceived benefits dimension (mean 20.13, SD 3.05), followed by acceptance (mean 18.22, SD 3.33) and helplessness (mean 13.20, SD 4.77), respectively. Furthermore, helplessness was significantly associated with depression ( $p < .01$ ) with a positive correlation coefficient ( $r$ ). Also, all items on the helplessness dimension had a significant correlation ( $p < .01$ ) with depression accompanied by a positive  $r$ -value.

**Conclusion:** Helplessness had a significant relationship with depression. So, cardiovascular nurses can anticipate depression in patients by making nursing interventions that can decrease the patients' feelings of helplessness. Thus, factors that reduce helplessness need to be explored and taken into accounts in the treatment of patients with coronary heart disease.

## Keywords

acceptance; coronary heart disease; depression; helplessness; illness cognition; perceived-benefits; nursing

Globally, Coronary Heart Disease (CHD) has become a leading cause of death with an increasing trend (Mensah et al., 2019). In addition, the current increase in air pollution in the form of PM2.5 (2.5-micron air particles) adds to the global age-standardized burden of CHD in several low- and middle-income countries, especially in Asia, Oceania, and Africa (Wang et al., 2021). In Indonesia, the Basic Health Research 2018 indicated a very high prevalence of CHD risk factors such as smoking, physical activity, and

hypertension, ranging from 28 to 33%. Moreover, following the situation leads to an increase in the number of Indonesian people getting cardiovascular disease (Uli et al., 2020). This condition shows that the health burden due to cardiovascular disease will rise in Indonesia (Adisasmito et al., 2020; Uli et al., 2020). Moreover, CHD is still a health problem that requires attention as its rates being the leading cause of death following stroke, causing 37% of deaths in Indonesia (Chow et al., 2017).

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CHD has an impact on the physical and psychological aspects of the patient. However, this psychological problem is still not optimally managed. Some studies indicated the failure of interventions for CHD patients to effectively deal with psychological issues such as anxiety and depression compared to physical problems after an acute condition (Su & Yu, 2019; Nuraeni et al., 2020; Turan Kavradim et al., 2020). In accordance, nurses as care providers have a role in providing holistic nursing care, including physical, psychological, and spiritual aspects. Consequently, nurses have opportunities and challenges in managing psychological problems that may occur in CHD patients.

On the psychological aspect, CHD patients often experience depression (Carney & Freedland, 2017). According to Lichtman et al. (2014) and Vaccarino et al. (2020), as much as 15-30% of CHD patients encounter depression. Specifically in Indonesia, Nur'aeni et al. (2019) found that 41% of 100 CHD patients undergoing outpatient treatment experienced depression. In addition, another study showed that 27.3% of 77 CHD patients experienced mild to severe depression (Chaerunnisa et al., 2017). Recent research in a cardiac intensive care unit found that 100% of the 84 CHD patients experienced mild (35.7%), moderate (58.3%), and severe depression (6.0%) (Amni, 2020). Those Indonesian studies affirmed that depression is a substantial problem experienced by CHD patients.

Several studies have also shown a high prevalence of depression followed by increased mortality and morbidity in CHD patients. Results of a systematic review by Lichtman et al. (2014) showed that depression was associated with an increased risk of death in patients with myocardial infarction. In addition, depression was also associated with severe functional disorders, low adherence to therapy, and low participation in cardiac rehabilitation (Vaccarino et al., 2020). Moreover, studies on quality of life also showed that depression was the strongest predictor of low quality of life in patients with CHD (Lane et al., 2000; Müller-Tasch et al., 2007; Nuraeni et al., 2016), compared to other factors of symptom severity in heart disease, such as angina, functional capacity, or dyspnea (Amin et al., 2006; Hare et al., 2014; Nuraeni et al., 2016).

Depression in CHD patients, if not treated properly, will give a poor prognosis. Although it can be treated with antidepressants, serotonin-norepinephrine reuptake inhibitors, tricyclic antidepressants, and selective serotonin reuptake inhibitors (Vaccarino et al., 2020), the use of antidepressants is significantly associated with fatal CHD complications such as sudden cardiac arrest (SDA) (Whang et al., 2009). This situation shows the importance of examining the causes of depression to provide appropriate intervention.

Previous studies attempted to identify factors associated with depression in patients with CHD in Indonesia. These factors were social support, anxiety, spiritual wellbeing, marital status, physical limitations, frequency of angina, and factors related to treatment history. These studies indicated that depression was associated with low spiritual wellbeing (Nur'aeni et al.,

2019), anxiety (Nuraeni et al., 2018), and low social support (Chaerunnisa et al., 2017). Another aspect to be explored concerning depressive symptoms is patients' belief of illness or illness perception or illness cognition. Illness cognition highlights the representation of cognitive and emotional elements that are dynamic in influencing a person's health behavior in facing disease threats (Ogden, 2012). According to Cameron and Leventhal (2003), illness cognition as the core of the Self Regulation Model (SRM) is a systematic process of setting goals, planning appropriate strategies to achieve, and evaluating goals and strategies to revise them. A conscious effort is involved in this systematic process of regulating thoughts, emotions, and behavior. Therefore, we were interested in studying how this systematic process occurred in each treatment phase experienced by patients by measuring illness cognition and analyzing its correlation with depression symptoms. Smallheer et al. (2018) recognized a correlation between illness cognition and subjective health in CHD patients; however, there was no direct relationship between illness cognition and depressive symptoms.

Furthermore, Illness cognition determines the adherence behavior of CHD patients to treatment (Leventhal et al., 1992; Evers et al., 2001; Shin et al., 2013), as well as depression (Shin et al., 2013; Vaccarino et al., 2020). Nevertheless, in Indonesia, the relationship between illness cognition and depressive symptoms in CHD patients has not been widely discussed in studies. As nurses play a role in preventing complications and increasing patient compliance in managing CHD, information about the relationship between these variables is beneficial, especially in depression prevention and intervention measures. Therefore, this study aimed to investigate the correlation between illness cognition and depressive symptoms among patients with CHD in Indonesia.

## Methods

### Study Design

This study used a correlational research design with a cross-sectional approach.

### Participants

The population was CHD patients who were undergoing treatment at a referral hospital in West Java, Indonesia. The sample selection using convenience sampling technique with inclusion criteria: 1) respondents aged at least 18 years; 2) respondent is undergoing treatment in one of the following areas of the cardiac care installation: Cardiac High Care Unit; non-intensive Cardiac Care Unit; Cardiac Rehabilitation Unit; and Cardiac Outpatient Unit. Exclusion criteria for potential respondents: 1) do not understand Bahasa Indonesia; 2) have a history of psychological or mental disorders.

The number of samples was determined using the sample size table for one correlation test. Utilizing an expected correlation between the two variables ( $r$ ) 0.778 from Smallheer et al. (2018), with a statistical power of

90%; alpha ( $\alpha$ ) 5%; and correlation coefficient of the null hypothesis ( $r$ ) 0.6, it was found that the number of minimum respondents needed was 56 (Bujang & Baharum, 2016), and a total of 106 respondents were involved in the study.

### Instruments

**Demographic questionnaire.** Respondents completed a demographic questionnaire that included age, gender, educational level, marital status, estimated monthly household income, and type of cardiac treatment.

**Beck Depression Inventory-II (BDI II).** We used The Beck Depression Inventory-II (BDI II) Bahasa Indonesia version to measure depression (Beck et al., 1996), which its validity value of  $r = .39 - .52$ ,  $p < .01$ , and Cronbach's  $\alpha$  of .90 (Ginting et al., 2013). The BDI II instrument categorized depression based on: not depression (0-13); mild depression (14-19); moderate depression (20-28); and major depression (29-63).

**Illness Cognition Questionnaire (ICQ).** Evers et al. (2001) developed the Illness Cognition Questionnaire (ICQ), consisting of 18 questions categorized into three dimensions: helplessness, acceptance, and perceived benefits. All questions were measured using a 1-4 Likert scale consisting of: Not at all (1); somewhat (2); to a large extent (3); and completely (4), which the higher the score indicates the higher acceptance, perceived benefits, and helplessness. In this study, we used the Bahasa Indonesia version of ICQ with permission from the original author. The construct validity of the Indonesian version of ICQ was .52 to .80. A reliability value for helplessness, acceptance and perceived benefits was .75, .69, and .70, respectively (Delima et al., 2018).

### Data Collection

Four final-year nursing students were involved as data collectors. Data collection was carried out from February to May 2017 at one of the referral hospitals in West Java, Indonesia. They have explained the research objectives and how to fill the instruments to respondents who meet the inclusion criteria.

### Data Analysis

Data were analyzed using SPSS version 25 software. Before analyzing the data, we tested the normality of the data on the variables: depression, acceptance, perceived benefits, and helplessness using Kolmogorov-Smirnov, and the results showed that the data were not normally distributed ( $p < .05$ ), so in this study, data processing used a non-parametric statistic. Data analysis in this study was divided into two stages. In the first stage, we described the characteristics of the respondents using the mean and standard deviations, median, and frequency distribution. In the second stage, we investigated the relationship between each dimension of illness cognition (acceptance, perceived benefits, and helplessness) and depression. We analyzed this second stage using Spearman-rank with a significance level of  $p < .05$ .

### Ethical Consideration

This study obtained ethics approval from the Research Ethics Committee of Universitas Padjadjaran No. 453 / UN6.C.10 / PN / 2017. All respondents had been informed and signed the consent form. In order to protect the respondents from harmful conditions, the data collection was conducted when the patients were reported free of chest pain. Additionally, the findings of this study are reported as grouped data. Therefore, participants' identification was anonymous.

### Results

A total of 106 respondents were involved in the study, consisting of 10% who were undergoing treatment at the High-care unit (HCU); 28% in non-high / Intensive Care Units; 39% in outpatient units; and 24% in the cardiac rehabilitation unit. Approximately three-quarters of the respondents are male (76%), and near a quarter (24%) are female. Moreover, almost all respondents were married (91%). Further information for the characteristics of respondents in this study can be seen in Table 1.

**Table 1** Respondents' characteristics

Respondents' Characteristics	Univariate Analysis	
	<i>n</i>	%
<b>Age</b>	106	10
<b>Sex</b>		
Male	81	76.4
Female	25	23.6
<b>Marital Status</b>		
Married	91	85.8
Not married	1	.9
Widow/Widower	14	13.2
<b>Education Level</b>		
Not formally educated	1	.9
Elementary school	45	42.5
Secondary school	33	31.1
Higher education	27	25.5
<b>Estimated Monthly Household Income</b>		
Less than 2.8 million IDR	60	56.6
2.8 – 5 million IDR	32	30.2
More than 5 million	14	13.2
<b>Cardiac Care Installation</b>		
High care unit	10	9.4
Non-high/intensive care unit	30	28.3
Outpatient unit	41	38.7
Cardiac rehabilitation unit	25	23.6
<b>Type of Treatment</b>		
Medication	24	22.6
Medication, fibrinolysis	25	23.6
Medication, PCI	24	22.6
Medication, CABG	6	5.7
Medication, fibrinolysis, PCI	22	20.8
Medication, PCI, CABG	2	1.9
Medication, fibrinolysis, CABG	2	1.9
Medication, fibrinolysis, PCI, CABG	1	.9