

# Ethical Challenges Faced by the Healthcare Workers to Provide Health Service During COVID-19 Pandemic

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## Abstract

**Background:** Managerial, administrative, and disease-related issues during COVID-19 pressurized the healthcare workers and challenged their ethical practice. This study attempted to shed light on the ethical challenges faced by the healthcare workers during the COVID-19 pandemic at B. P. Koirala Institute of Health Sciences (BPKIHS).

**Methods:** Descriptive cross-sectional study using convenience sampling was conducted among 108 registered doctors and nurses working in BPKIHS. Data were collected using pretested, self-designed semi-structured online questionnaires and analyzed using descriptive statistics.

**Results:** Majority (78.7%) of the respondents feared of contracting the disease while caring for the patient. Nearly 30% respondents reported that they had to frequently work with inadequate protective measures. Fifty-four percent respondents reported that sometimes they had to continue work with suspected symptoms due to shortage of manpower. Almost half (49.1%) of the respondents had to sometimes prioritize the care among the patients due to shortage of resources. Most (72%) of the respondents never had to force COVID positive patient for hospital admission. Around 20% of the respondents had to disclose COVID status of patients without consent. Around 14% of the respondents had sometimes refused care of COVID positive patients. More than half (55.6%) of the respondents had sometimes felt that the patients did not receive holistic care.

**Conclusion:** The major ethically challenging situations faced by healthcare workers during the COVID pandemic included continuous work with suspected symptoms due to shortage of manpower, continuing work with inadequate protective measures, and prioritizing care due to shortage of resources.

**Keywords:** COVID-19; Health personnel; Health services; Pandemics

## Declarations

**Ethics approval and consent to participate:** Ethical approval was obtained from Institutional Review Committee (IRC), BPKIHS (Ref No.: 41/078/079). Approval was also obtained from the Research Committee, BPKIHS. Consent was obtained from the respondents prior to data collection.

**Consent for publication:** Not applicable

**Availability of data and materials:** The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request. All relevant data are within the manuscript and its supporting information files.

**Competing interest:** None

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Sudden outbreak of COVID-19 and the exponential rise of cases created unexpected and unprecedented challenges to every country, government, and most dramatically to the health sector. It posed tremendous pressure and challenged the health facilities and the health care resources even in the developed nations [1-4]. In a developing nation, the scenario was worse. The health workers working in all areas were under increased pressure to provide care to the patients within an inappropriate setting with limited resources [5-6].

As healthcare workers respond to human suffering in their day-to-day activities, the ethical challenge of preserving the patients' autonomy, beneficence, non-maleficence, justice, and confidentiality can commonly arise [7-9].

In a pandemic situation, all healthcare workers are stressed with workloads exceeding the normal limit coupled with the scarcity of resources, supplies, an unfamiliar environment, and an unknown progression of the disease. With the evidence of healthcare workers at high risk of getting infected, they are restricted to fulfill their obligations towards the patient. Because of this extreme situation, they need to adjust their ethical beliefs leading to moral distress and consequently burnout [10-16]. Many aspects of this pandemic have caused moral distress, and unexpected challenges to the ethical values of health professionals including complex human rights issues in many settings [17].

Studies and systematic reviews conducted to assess the ethical challenges have highlighted the issues such as patient's autonomy, privacy, confidentiality, and end-of-life issues [18-22].

Several authors have highlighted the probable challenges that the frontline health workers may face during this COVID-19 pandemic as issues in patients' autonomy, decision pertaining to the allocation of scarce resources, privacy and confidentiality of patients, and safety of health workers [4,12,23]. However, limited published studies were found assessing the ethical challenges during the COVID pandemic.

The main objective of this study was to assess the ethical challenges faced by healthcare workers at B. P. Koirala Institute of Health Sciences (BPKIHS), Dharan, Nepal during COVID-19 pandemic.

## METHODS

This descriptive cross-sectional study was conducted from September to December 2021 in all inpatient wards of BPKIHS. A convenience sampling technique was used to collect the data. Doctors and nurses present in the wards during their duty were approached following the COVID pandemic protocol (i.e. using a

mask, social distancing). Those who agreed to participate were sent an online questionnaire in Google form format.

The required sample for this study was estimated using the formula  $4pq/l^2$ . The sample size was based on a study conducted by Sperling which showed the prevalence of fear to take care of the patients with COVID-19 as 40.9% [24]. So, considering the prevalence (p) for this study as 40.9%,  $q = 59.1\%$ ,  $l = 8.18$  (20% of p), and adding 5% for the nonresponse, the final sample size was 151. Total of 180 prospective samples were approached. Among them 151 consented for the study. The questionnaire response rate was 72% (n=108).

Based on an extensive literature search a semi-structured questionnaire was prepared. [4,15,23,24]. The questionnaire was prepared in English. It was translated into Nepali and then back-translated to English. Respondents were provided with the questionnaire in both languages. The questionnaire consisted of four sections as follows–

Section A: Socio-demographic and health related characteristics (10 items),

Section B: Health status and practice during COVID-19 pandemic (11 items),

Section C: Ethical challenges faced (7 items).

Section D: Respondents' opinion towards the management of the COVID-19 pandemic (2 items).

In sections A and B multiple-choice questions and semi-structured questions were present. Section C consisted of 3-point Likert scale items. In section D, one question was in the Likert scale and the other was open-ended. Content validity was established by consultation with experts. The questionnaire was pretested among 10% of the subjects to identify any ambiguities.

Ethical clearance was obtained from the Institutional Review Committee (IRC) BPKIHS and an approval letter was provided by the Research Committee, BPKIHS. Consent was obtained from the respondents prior to data collection.

The data were collected, checked, and transformed in Microsoft EXCEL 2007 and SPSS (Statistical Package for Social Sciences) PC 11.5.0 version. Descriptive statistics (frequency, percentage, mean and standard deviation) were used to describe the socio-demographic variables and the ethical challenges faced by the healthcare workers. Each item in Section C was analyzed separately. The open-ended question of Section D was categorized on the basis of the opinion of the respondents under four broad themes: manpower, resource, management of hospital and investigation facilities.

## RESULTS

The mean age of the respondents was  $29.88 \pm 5.6$  years. More than two-third respondents (76.9%) were female. Most (70.4%) of the respondents were nurses. Around 16% of the respondents had chronic health problems. Most (68.5%) of the respondents stayed with their family members. Half of the respondents who stayed with the family members had a member with chronic health problems. (Table 1)

More than half (51.9%) of the respondents had COVID positive status at least once. The majority (55.6%) had not received any training/ Continuing Medical Education (CME)/ Continuing Nursing Education (CNE) related to COVID-19. Most (67.6%) of the respondents had encountered unprotected exposure to COVID patients. The majority (84.25%) of the respondents feared that they would transmit the disease to their family members. (Table 2)

Around one-third (28.7%) of respondents reported that they had to frequently work with inadequate protective measures. Fifty-four percent of the respondents reported that sometimes they had to continue work with suspected symptoms due to shortage of manpower. Almost half (49.1%) of the respondents had to sometimes prioritize the care among the patients due to a shortage of resources.

Most (72%) of the respondents never had to force COVID positive patients for hospital admission. Around 20% of the respondents had to disclose COVID status of patients without their consent. Around 14% of the respondents had sometimes refused care of COVID positive patients. More than half (55.6%) of the respondents had sometimes felt that the patients did not receive holistic care. (Table 3)

Respondents were asked to rate the degree of how well the hospital is managing the pandemic. Fifty percent of respondents rated 3 on a total of 5 regarding the management of the pandemic. More than half (51.85%) of the respondents identified inadequate manpower followed by the inadequate resources (46%) as the constraints for managing the pandemic by the hospital.

## DISCUSSION

The COVID-19 pandemic has raised various ethical challenges among the healthcare workers. Most of the ethical challenges focus on the issues in patients' autonomy, decisions pertaining to the allocation of scarce resources, privacy and confidentiality of patients, and the safety of health workers [4, 12, 23]. This study depicts the self-reported ethical challenges faced by the respondents.

In the present study, more than half (51.9%) of the

**Table 1: Socio-demographic and health related characteristics of the respondents (n = 108)**

Characteristics	Category	Frequency (n)	Percentage (%)
Age (y) (Mean $\pm$ SD = 29.88 $\pm$ 5.6)	$\leq 30 / > 30$	64/ 44	59.3/ 40.7
Gender	Male/ Female	25/ 83	23.1/ 76.9
Educational level	Intermediate	47	43.5
	Bachelor	34	31.5
	Masters & above	27	25
Profession	Doctor	32	29.6
	Nurse	76	70.4
Work experience (y) Median (IQR) = 4.5 (2.5 - 6.25) Range: (0.5-26 years)	$\leq 5 / > 5$	60/ 48	55.6/ 44.4
Chronic health problem Specific chronic health problem present (n = 17) *	Yes/ No	17/ 91	15.7/ 84.3
	Asthma	5	29.41
	Diabetes	4	23.52
	Hypertension	7	41.17
	Others	3	17.64
Staying with family Chronic health problem in family member (if staying together) (n = 74)	Yes/ No	74/ 34	68.5/ 31.5
	Yes/ No	37/ 37	50/ 50
Type of health problem in family member (if staying together) (n = 37)*	Hypertension	31	83.78
	Diabetes	15	40.54
	Others	12	32.43

\*Multiple response question.

**Table 2: Health status and practice related to COVID 19 (n = 108)**

Characteristics	Category	Frequency (n)	Percentage (%)
COVID positive status anytime	Yes/ No	56/ 52	51.9/ 48.1
Vaccination against COVID-19	Complete/ Incomplete	95/ 13	88/ 12
Any training/ CME/ CNE received regarding COVID-19	Yes/ No	48/ 60	44.4/ 55.6
Type of training if received (n=48)	Orientation	23	47.9
	CME/ CNE	14	29.2
	Others	11	22.9
Frequency of treating or taking care of COVID patient	Frequently	63	58.3
	Sometimes	40	37
	Rarely	2	2.8
	Never	3	1.9
Any unprotected exposure to COVID patient	Yes	73	67.6
	Not sure	33	30.6
	Never	2	2
Frequency of exposure	Frequently	24	22.2
	Sometimes	43	39.8
	Rarely	6	6
COVID status after exposure (n = 73)	Positive / Negative	23/ 50	21.3/ 46.3
Facility of PPE in workplace	Yes/ No	55/ 53	50.9/ 49.1
Source of PPE (n = 55)	Institution/ Self	52/ 3	94.54/ 5.45
Fear when treating COVID patient*	Being infected oneself	85	78.70
	Transmitting the disease to family members	91	84.25
	Transmitting the disease to other patients	65	60.18
	Fear of death	23	21.29
	No fear	4	3.70

\*Multiple response question. CME: Continuing Medical Education, CNE: Continuing Nursing Education, PPE: Personal protective equipment.

**Table 3: Ethical Challenges faced by respondents (n = 108)**

Characteristics	Category	Frequency (n)	Percentage (%)
Work with inadequate protective measures	Frequently	31	28.7
	Sometimes	67	67
	Never	10	10
Continue work with suspected symptoms due to shortage of coworkers	Frequently	15	13.9
	Sometimes	54	54
	Never	39	39
Prioritize care	Frequently	6	5.6
	Sometimes	53	49.1
	Never	49	45.4
Force COVID positive patient for hospital admission	Frequently	2	1.9
	Sometimes	34	34
	Never	72	72
Disclosed COVID status without consent	Frequently	4	3.7
	Sometimes	19	17.6
	Never	85	78.7
Refused care of COVID positive patient	Frequently	1	0.9
	Sometimes	15	13.9
	Never	92	85.2
Patient not received holistic care	Frequently	27	25
	Sometimes	60	55.6
	Never	21	19.4

respondents were already COVID positive before the data collection. The majority (88%) had received the two doses of the COVID vaccine. Only 44.4% had received training/ CME/ CNE related to COVID-19. A study conducted among nurses in Israel reported 68.8% of the respondents had received some form of training about COVID-19 [24]. However, an explorative study reported lack of preparedness with no orientation led to a huge workload, fear, and extreme floundering during pandemic [25]. Orientation to disease and vaccination may determine the preparedness to provide an adequate response to the pandemic. Around 60% of the respondents had frequently treated or taken care of COVID patients in the present study.

Almost half (49.1%) of the respondents reported the unavailability of personal protective equipment (PPE) such as masks, sanitizer, soaps, gloves in the workplace. The majority (94.54%) responded that the available PPE was provided by the institution. However, one-third (28.7%) of respondents reported that they had to frequently work with inadequate protective measures. Health workers who are assigned on duty without PPE are at high risk of infection not only to themselves but also to their families and other clients. Thus, it violates no harm to others or the nonmaleficence ethical principle [26]. Most of the respondents (67.6%) had encountered unprotected exposure to COVID patients. After the unprotected exposure, 21.3% were COVID positive. In the present study, 68.5% of the respondents were staying with family members. Almost 85% of the respondents feared of transmitting the disease to family members and 78.7% feared of contracting the disease to themselves as well while treating the COVID patients. Fear of risk of infection and transmission to family members may have been coupled with the unavailability of adequate PPE. Fear of risk of infection in healthcare workers was evident in both quantitative and qualitative data as elucidated by Maraqa et al [25]. A study among nurses showed that 28.8% of respondents highly agreed (rated 4 or 5) with the statement that they fear coming to work because of their risk of contracting the virus [24].

As mentioned by Menon and Padhy, during pandemic healthcare workers may have a dilemma of whether to open up about the symptoms and stay at home, risking social and workplace discrimination, or continue to go to work as usual, risking colleague's health, till the test results arrive [4]. In the present study 54% of the respondents reported that sometimes they had to continue work with suspected symptoms due to shortage of coworkers.

When the resources are limited, the patients who could be treated during the normal conditions might not get adequate treatment and care as the patient-centered medical care is diverted to public-centered during the public health emergencies [27]. In the present study, almost half (49.1%) of the respondents had to sometimes

prioritize the care among the patients due to a shortage of resources. Although the majority of the healthcare workers never encountered forceful admission, 28% of healthcare workers had to forcefully admit a patient in COVID hospital. Around 20% of the respondents had to disclose COVID status of patients without consent. Ethical practice pertaining to patients' autonomy to decide for their admission and their confidentiality might have been compromised during a health emergency.

Health workers should have high standards of altruism and beneficence and hence have a duty to care for patients even at a risk to themselves [25]. In the present study majority (85.2%) have never refused care of COVID patients. Yet around 14% of the respondents had sometimes refused care of COVID-positive patients. Fear of contracting the disease to self and to the family members as expressed by the respondents may be the possible cause for the refusal. A study in Israel among nurses showed that 74.7% of the nurses do not believe they have the right to refuse to treat certain patients during the COVID-19 outbreak [24]. As mentioned, many health workers have to work challenging the ethics which might have hindered the patients from receiving holistic care as reported by the respondents.

As the tool used for the assessment of ethical challenges is the subjective expression of the participants there may be response bias. Since the study was conducted during the second phase of COVID-19 it was challenging to have face-to-face interaction due to the need to follow the social distancing and health guidelines. May be due to high work pressure and stress, although 151 participants consented to respond before sending the online questionnaire, the response rate was only 72%. A meta-analysis of published research has shown an average online survey response rate of 44.1% [28]. The use of an online questionnaire mode may be the other major reason for the decreased response.

However, the study provides valuable insight into the challenges pertaining to ethical decisions faced by healthcare workers during a pandemic. Identifying the ethical challenges may be helpful in managing healthcare in future pandemics. Future lines of research may include an in-depth analysis of the ethical challenges and their physical and mental health consequences among healthcare workers.

## CONCLUSION

Continuous work with suspected symptoms due to a shortage of coworkers, working with inadequate protective measures, and prioritizing care due to a shortage of resources were the major ethically challenging situations faced by the healthcare workers in their day-to-day activities during the COVID pandemic. The current study shows that healthcare workers have to face various ethically challenging situations in their day-to-day activities during the COVID pandemic.

## References

1. Timeline of WHO's response to COVID 19 [Internet]. World Health Organization. [cited 2020 Aug 7]. Available from: <https://www.who.int/news-room/detail/29-06-2020-COVIDtimeline>
2. Cennimo DJ, Bergman SJ, Olsen KM. Coronavirus Disease 2019 (COVID-19): Practice essentials, background, route of transmission. [Internet]. Medscape [cited 2020 Aug 7]. Available from: <https://emedicine.medscape.com/article/2500114-overview>
3. Yusof AN, Muuti MZ, Ariffin LA, Tan MK. Sharing information on COVID-19: the ethical challenges in the Malaysian setting. *Asian Bioeth Rev.* 2020;12(3):349-61. DOI: 10.1007/s41649-020-00132-4
4. Menon V, Padhy SK. Ethical dilemmas faced by health care workers during COVID-19 pandemic: Issues, implications and suggestions. *Asian J Psychiatr.* 2020;51:102116. DOI: 10.1016/j.ajp.2020.102116.
5. Razu SR, Yasmin T, Arif TB, Islam MS, Islam SM, Gesesew HA, et al. Challenges faced by healthcare professionals during the COVID-19 pandemic: a qualitative inquiry from Bangladesh. *Front Public Health.* 2021;9:647315. DOI: 10.3389/fpubh.2021.647315
6. Pokharel R, Shah T, Lama S, Karki A, Shrestha E. Psychosocial responses to COVID-19 among nurses in two hospitals: a mixed method study at Eastern Nepal. *J Ment Health.* 2022;31(4):551-9. DOI: 10.1080/09638237.2021.2022634
7. Beauchamp TL, Childress JF. Principles of biomedical ethics. 5th ed. New York: Oxford University Press;2001.
8. McDermott-Levy R, Leffers J, Mayaka J. Ethical principles and guidelines of global health nursing practice. *Nurs Outlook.* 2018;66(5):473-81. DOI: 10/1016/j.outlook.2018.06.013.
9. Berlinger N, Wynia M, Powell T, Hester M, Milliken A, Rabi R, et al. Ethical framework for health care institutions & guidelines for institutional ethics services responding to the coronavirus pandemic [Internet]. New York: The Hastings Center; 2020 Mar 16 [cited 2020 Aug 2]. Available from: <https://www.thehastingscenter.org/ethicalframeworkCOVID19/>
10. Wright DK, Peterson W, Gifford W. Nurses' ethical considerations during a pandemic [Internet]. Ottawa: Canadian Nurses Association; [cited 2020 Aug 2]. Available from: [https://hl-prod-ca-oc-download.s3-central-1.amazonaws.com/CNA/2f975e7e-4a40-45ca-863c-5ebf0a138d5e/UploadedImages/documents/Nurses-Ethical-Considerations-during-a-Pandemic\\_e.pdf](https://hl-prod-ca-oc-download.s3-central-1.amazonaws.com/CNA/2f975e7e-4a40-45ca-863c-5ebf0a138d5e/UploadedImages/documents/Nurses-Ethical-Considerations-during-a-Pandemic_e.pdf)
11. Nurses, ethics and the response to the COVID 19 pandemic [Internet]. Silver Spring (MD): American Nurses Association; [cited 2020 Aug 2]. Available from: [https://www.nursingworld.org/~4981cc/globalassets/COVID19/nurses-ethics-and-the-response-to-the-COVID-19-pandemic\\_pdf-1.pdf](https://www.nursingworld.org/~4981cc/globalassets/COVID19/nurses-ethics-and-the-response-to-the-COVID-19-pandemic_pdf-1.pdf)
12. Morley G, Grady C, Mccarthy J, Ulrich CM. COVID-19: ethical challenges for nurses. *Hastings Cent Rep.* 2020;50(3):35-9. DOI:10.1002/hast.1110
13. Gray N. Palliative care in the time of COVID [Internet]. The Ink Vessel. 2020 [cited 2020 Aug 2]. Available from: <https://inkvessel.com/2020/03/18/palliative-care-in-the-time-of-COVID/>
14. Subedi A. Medical ethics vs. healthcare workers' rights: fight-or-flee response. *Anesth Analg.* 2020;131(3):e173-e174. DOI:10.1213/ANE.00000000000005060
15. Shah A, Acharya RP. Combating COVID-19 pandemic in Nepal: ethical challenges in an outbreak. *JNMA J Nepal Med Assoc.* 2020;58(224):276-9. DOI:10.31729/jnma.4959
16. Pearce K. In fight against COVID-19, nurses face high-stakes decisions, moral distress [Internet]. Baltimore (MD): The Hub. John Hopkins University; 2020 Apr 7 [cited 2020 Aug 2]. Available from: <https://hub.jhu.edu/2020/04/06/COVID-nursing-cynda-rushton-qa/>
17. Turale S, Meechamnan C, Kunaviktikul W. Challenging times: ethics, nursing and the COVID-19 pandemic. *Int Nurs Rev.* 2020;67(2):164-7. DOI:10.1111/inr.12598
18. Adhikari S, Paudel K, Aro AR, Adhikari TB, Adhikari B, Mishra SR. Knowledge, attitude and practice of healthcare ethics among resident doctors and ward nurses from a resource poor setting, Nepal. *BMC Med Ethics.* 2016;17(1):68. DOI:10.1186/s12910-016-0154-9
19. Ulrich CM, Taylor C, Soeken K, O'Donnell P, Farrar A, Danis M, et al. Everyday ethics: ethical issues and stress in nursing practice. *J Adv Nurs.* 2010;66(11). DOI:10.1111/j.1365-2648.2010.05425.x
20. Hopia H, Lottes I, Kanne M. Ethical concerns and dilemmas of Finnish and Dutch health professionals: *Nurs Ethics.* 2015;23(6):659-73. DOI:10.1177/0969733015579311
21. Nora CR, Zoboli EL, Vieira M. Ethical problems experienced by nurses in primary health care: integrative literature review. *Rev Gaucha Enferm.* 2015;36(1):112-21. DOI:10.1590/1983-1447.2015.01.48809
22. Rainer J, Schneider JK, Lorenz RA. Ethical dilemmas in nursing: An integrative review. *J Clin Nurs.* 2018;27(19-20):3446-61. DOI: 10.1111/jocn.14542
23. McGuire AL, Aulisio MP, Davis FD, Erwin C, Harter TD, Jagsi R, et al. Ethical challenges arising in the COVID-19 pandemic: an overview from the association of bioethics program directors (ABPD) task force. *Am J Bioeth.* 2020;20(7):15-27. DOI: 10.1080/15265161.2020.1764138
24. Sperling D. Ethical dilemmas, perceived risk, and motivation among nurses during the COVID-19 pandemic. *Nurs Ethics.* 2021;28(1):9-22. DOI:10.1177/0969733020956376
25. Maraqa B, Nazzal Z, Zink T. Mixed method study to explore ethical dilemmas and health care workers' willingness to work amid COVID-19 pandemic in Palestine. *Front Med (Lausanne).* 2021;7:576820. DOI: 10.3389/fmed.2020.576820
26. Gebreheat G, Teame H. Ethical challenges of nurses in COVID-19 pandemic: Integrative Review. *J Multidiscip Healthc.* 2021;14:1029-35. DOI: 10.2147/JMDH.S308758
27. Subedi N. Ethical challenges in medical practice in the context of Coronavirus disease 2019 in Nepal. *Journal of Gandaki Medical College-Nepal.* 2020;13(1):1-3. DOI: 10.3126/jgmcn.v13i1.29257
28. Wu M, Zhao K, Fils-Aime F. Response rates of online surveys in published research: a meta-analysis. *Computers in Human Behavior Reports.* 2022;7: 100206. DOI: 10.1016/j.chbr.2022.100206