

# Ethics and organizational performance before and during COVID-19 in Mexican hospitals within urban areas

## Ética y desempeño organizacional antes y durante COVID-19 en hospitales mexicanos dentro de áreas urbanas

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### Abstract

**Objective:** The purpose of this paper is to analyze the differences in the perception of ethical decision making, organizational ethical climate, and organizational performance, before and during the COVID-19 pandemic by some health professionals in public and private hospitals in urban areas in Mexico.

**Materials and Method:** 68 health professionals answered a survey using the snowball sampling technique. This digital structured survey evaluated the demographic characteristics of respondents and 3 dimensions (constructs) divided in 53 items: ethical decision making, organizational ethical climate, and organizational performance, before the COVID-19 pandemic (year 2019) and during the pandemic (year 2020-2021). To compare the differences of the dimensions before and during COVID-19, the t-test was carried out for dependent samples.

**Results:** In the ethical decision making and organizational ethical climate dimensions, there were no statistically significant differences in the averages before and during the pandemic. In relation to the organizational performance there is a statistically significant difference in the averages before and during the pandemic, with a decrease in performance.

**Conclusions:** This research contributes to literature on healthcare service management suggesting to acknowledge that, in an adverse environment, the decision making process based on ethics and an ethical climate should be maintained in the organizations to avoid a more dramatic fall in performance.

**Key words:** Occupational Groups; Ethics, Medical; Ethics, Organizational; Task Performance and Analysis; COVID-19.

### Resumen

**Objetivo:** El propósito de este artículo es analizar las diferencias en la percepción de la toma de decisiones éticas, clima ético organizacional y desempeño organizacional, antes y durante la pandemia por COVID-19, en algunos profesionales de la salud de hospitales públicos y privados del área urbana de México.

**Materiales y Métodos:** 68 profesionales de la salud respondieron una encuesta utilizando la técnica de muestreo de bola de nieve. Esta encuesta estructurada digital evaluó las características demográficas de los encuestados y 3 dimensiones (constructos) divididas en 53 ítems: toma de decisiones éticas, clima ético organizacional y desempeño organizacional, antes de la pandemia de COVID-19 (año 2019) y durante la pandemia (año 2020-2021). Para comparar las diferencias de las dimensiones antes y durante el COVID-19, se realizó la prueba t para muestras dependientes.

**Resultados:** En las dimensiones toma de decisiones éticas y clima ético organizacional, no se presentaron diferencias estadísticamente significativas en los promedios antes y durante la pandemia. En relación al desempeño organizacional existe una diferencia estadísticamente significativa en los promedios antes y durante la pandemia, con una disminución en el desempeño.

**Conclusiones:** Esta investigación contribuye a la literatura acerca de la gestión de servicios de salud sugiriendo que, en un entorno adverso, la toma de decisiones basada en la ética y un clima ético deben mantenerse en las organizaciones para evitar una caída más dramática en el desempeño.

**Palabras clave:** Grupos Profesionales; Ética Médica; Ética Organizacional; Análisis y Desempeño de Tareas; COVID-19

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## Introduction

The health services for the prevention and treatment of non-communicable diseases (NCDs) in the Americas have been seriously affected as a consequence of the pandemic. The routine services to treat such diseases were interrupted and those who suffered from them were more prone to getting sick with COVID-19<sup>1</sup>. In addition, the interaction between the disease caused by the coronavirus SARS-COV2 and the NCDs increased the global burden of that disease<sup>2,3</sup>.

As a response to the pandemic, the routine health services were reorganized or interrupted, and many health professionals were redirected to deal with the contingency. This implied the internal redesign of the activities in innovative ways to deal with both scenarios. The health professionals adopted and adapted their individual and group decisions based on the internal processes, the organizational climate of the hospital units where they work, and also according to the clinical and administrative activities they performed<sup>4,5,6</sup>. However, in their effort to meet the requirements of the processes under complex and quick-changing environments, they carried out practices that left behind some ethical principles.

An organization with an ethically solid setting balances the patient care and the application of the clinical ethics with the duties centered in the organization<sup>7,8,9</sup>. The professional ethics can be defined as the norms or behavior standards that are developed to guide the professionals of a discipline, examining the moral, behavior and social practices. In the medical field it includes, concepts of beneficence, autonomy, no maleficence and justice<sup>10</sup>.

Meanwhile, organizational ethics highlight the set of values, norms and principles that reflect the organizational culture, which is made up from individual ethics that together form organizational ethics. Individual ethics and organizational ethics both have an impact on each other, being this a bidirectional process<sup>11</sup>. In turn, organizational ethics is regulated by several principles that society dictates, mainly social justice, solidarity, quality, and trust, which is why an organization adopts a responsibility due to a series of demands in its acts<sup>12</sup>.

Additionally, the Burke-Litwin model, which provides a context and framework to understand how the work environment (organizational climate) and organizational culture interact and are interdependent with different dimensions of an organization, especially from a socio-technical system and change perspective<sup>13</sup>. The interaction between social responsibility, organizational ethics and professional ethics is observed in the organizational climate, which can be conceptualized as a construct that allows identifying the degree of interaction of the members of an

organization with its physical and social environment. From the ethics perspective, the ethical climate is defined as the shared perceptions of what an ethically correct behavior is and how the ethical matters must be handled<sup>14,15</sup>.

Since the 2000's decade, in addition to the COVID-19 pandemic, the health systems in Latin America countries have faced different changes like restructuring, technological advances, changes in the procedures, budgets and limitations in their policies to improve productivity in health care. Moreover, the organizations that belong to this system, have faced the COVID-19 pandemic, forcing them to maintain an ethical behavior<sup>16,17,18,19,20</sup>.

The evidence in the scientific literature in Mexico shows a great development of work in the area of clinical bioethics and scientific research in the area of health during the COVID-19 pandemic, such as the role of palliative care, presentation of patients to a bioethics committee, and analysis of ethical values, with little evidence on organizational ethics<sup>21,22,23,24</sup>.

The objective of the present study was to identify the differences in the ethical decision making, the organizational ethical climate and the organizational performance, before and during the COVID-19 pandemic by some health professionals in public and private hospitals in urban areas in Mexico. The specific objectives were: 1) to examine the organizational performance, before and during the pandemic in the participating hospital, and 2) to analyze the effect of the ethical decision making and the organizational ethical climate in the organizational performance. The analysis is based on a survey answered by 68 health professionals working at private and public hospitals in Mexico. The main contribution of this paper is to explore the effects of the COVID-19 pandemic on ethical decision making, organizational ethical climate, and organizational performance.

## Materials and Method

A cross-sectional descriptive study was performed in which the information was collected, during September and October 2021, from health professionals who work at hospital units in nine states in Mexico (Puebla, Distrito Federal, Baja California Sur, México, Tlaxcala, Tamaulipas, Guanajuato, Nuevo León y Veracruz de Ignacio de la Llave). The following occupations were included: nursing, medicine, chemistry, and others (such as paramedics and radiology technologists). The hospitals that were included are public and private.

A self-administered digital survey was applied to the 68 participants. The sample was selected through a non-probability sampling using the snowball technique. Such survey evaluated the demographic characteristics of

participants and 3 dimensions (constructs) divided into 53 items (ethical decision making, organizational ethical climate and organizational performance) before and during the COVID-19 pandemic. The answers used a Likert scale of five dimensions: never (1), almost never (2), regularly (3), almost always (4) and always (5), considering as favorable those answers with an average equal or over 3.5<sup>25,26,27</sup>.

In the ethical decision making and organizational performance dimensions, the Donabedian model of attention quality indicators were adapted which allow analyzing the structure, processes and results of the provided attention in a service, hence it indirectly evaluates the organizational performance<sup>28</sup>. At the same time, those methods and instruments were used because their structure allow establishing the factors that must be analyzed in the ethical decision making and organizational performance, such as:

- Ethical decision making
  - Questionnaire about the climate for ethical decision making (EDMCQ) by Van den Bulcke *et al.*<sup>29</sup>.
  - Ethical problems in the nursing management (EProNuma) by Aitamaa *et al.*<sup>30</sup>.
  - Questionnaire of shared decision making for doctors (SDM-Q-Doc) by Scholl *et al.*<sup>31</sup>.
- Organizational performance (job performance)
  - Perceived organizational performance questionnaire, by Delaney and Huselid<sup>32</sup>.
  - Evaluation of performance or of the competences in the clinical practice, by Morán<sup>33</sup>.
  - Factors that interfere with performance by Moreira *et al.*<sup>34</sup>.

To analyze the organizational ethical climate, the Hospital Ethical Climate Survey (HECS) by Olson<sup>35</sup> was adapted because this is designed only to identify the nursing staff, hence the questions were modified to be applied to health professionals in this study.

The ethical decision making comprises 7 factors analyzed through 14 questions. The organizational ethical climate is structured by five factors and 26 questions. The organizational performance is constituted by 10 factors and 13 questions. The analysis of internal consistency of the three dimensions using Cronbach's alpha coefficient was analyzed in a pilot study and a final application. The consistency in the final application was: ethical decision making 0.949, organizational ethical climate 0.975 and organizational performance 0.949.

The numerical variables proposed for this study were analyzed using descriptive statistics with mean (average), minimum and maximum, while categorical variables are shown in frequencies and percentages. For the comparison of differences before and during COVID-19 in ethical decision making, organizational ethical climate, and organizational performance, the t-test was carried out for dependent samples, considering the mean of the differences equal to before COVID-19 minus during COVID-19, being these positive values in the difference, an increase of the mean; that is, an increase of the mean during COVID-19 in relation to the mean before COVID-19.

The test is obtained in the following way<sup>36</sup>:

$$t = \bar{d} - \mu_d / s_d / \sqrt{n}$$

Where:

$\bar{d}$  = mean of the sample of score differences

$\mu_d$  = hypothetical mean of the population of score differences

$S_d$  = standard deviation of the sample of the score differences

To analyze the effect of COVID-19, ethical decision making and organizational ethical climate on organizational performance, a random intercept mixed effects model with time effect was estimated, which determines the effect of ethical decision making and organizational ethical climate considering the change in time due to COVID-19 in before and during, and as random effect to the participants.

In the random intercept model with time effect (COVID-19), the response variable, depends on subject  $j$  and time measurement  $ti$ , this as linear mixed effect model is<sup>37</sup>:

$$y_{ij} = \beta_0 + \beta_1 ti + \beta_2 ti + u_j + \varepsilon_{ij}$$

Where:

$y_{ij}$  = Is the organizational performance measurement

$\beta_0$  = Constant or intercept estimator

$ti$  = Time of measurement variable

$\beta_1$  = Estimator of the average effect of time with ethical decision making

$\beta_2$  = Estimator of the average effect of time with the organizational ethical climate.

$u_j$  = Random subject effect  $j$  -nth.

$\varepsilon_{ij}$  = Random error of subject  $j$  measurement in time  $i$ .

All tests were considered as statistically significant with a  $p < 0.05$ . The analysis was carried out with the statistical package IBM (SPSS) 23.0 version, R 4.0.3 version with the RStudio interface 1.3.1056 version and Microsoft Excel 2013.

## Results

### Socio-demographic characteristics

The profile of the 68 participants according to their demographic characteristics, indicates that they were mainly women (60.3%), most with Medicine as their profession (73.5%), with a bachelor's degree as their highest study level (30.9%) 76.5% of public hospitals, with availability of an ethical department (45.6%), most being from the state of Puebla (32.4%) (Table 1).

**Table 1.** Demographic characteristics of the surveyed health professionals in selected states in Mexico, 2021

Demographic characteristics (n=68)		Frequency	Percentage
Gender	Women	41	60.3
	Men	27	39.7
Profession	Medicine	50	73.5
	Nursing	10	14.7
	Chemistry	4	5.9
	Others	4	5.9
Academic degree	Bachelor's degree	21	30.9
	Specialty	20	29.4
	Master's degree	13	19.1
	Subspecialty	9	13.2
	Others	5	7.4
Institutions	Public	52	76.5
	Private	16	23.5
Ethics department	Yes	31	45.6
	No	17	25
	Unknown	20	29.4
State	Puebla	22	32.4
	Distrito Federal	20	29.4
	Baja California Sur	9	13.2
	México	6	8.8
	Tlaxcala	6	8.8
	Tamaulipas	2	2.9
	Guanajuato	1	1.5
	Nuevo León	1	1.5
Veracruz de Ignacio de la Llave	1	1.5	

Source: Authors' own elaboration based on the survey.

### Differences before and during COVID-19

In general, in the section of ethical decision making before and during COVID-19, the respondents answered that they "almost always" adopt an ethical position, (mean of 3.98 before and 4.00 during, difference not statistically significant); it could be inferred that they maintained the same criteria in the decision making of this nature before and during the pandemic, as it happened in other industries that are related with healthcare such as informatics and digital

healthcare, in which transparency, responsibility, autonomy and justice were maintained<sup>38,39</sup>. However, a statistically significant difference was found ( $p=0.034$ ) in factor number seven procedures; in other words, among the surveyed they perceived in a different way the policies, guidelines, and processes of the institution which contribute to decision making in favor of the patient's health, with a before average of 3.81 and 3.71 during (Table 2). This have been observed in other organizations such as intensive care units in the Netherlands, Spain and Italy<sup>40,41</sup>.

Regarding the organizational ethical climate, before COVID-19 there was an average of 3.79, with a decrease not statistically significant ( $p=0.079$ ). In the itemization of averages per factors, a decrease of 0.09 statistically significant  $p=0.046$  in factor number 3 (boss) is observed, which could empirically suggest that the established guidelines in the health institutions during COVID-19 forced bosses to search for the achievement of the hospital's goals, which some theorists suggest in crisis situation the organization adapts actively to complex and rapid changes<sup>42,43</sup>, modifying the organizational ethical climate under this perspective. Despite the rest of the factors did not show statistically significant differences, it could be highlighted that the averages (from "almost always" to "regularly") both in the hospital and in health professionals get closer to 3.5, which is the acceptable minimum.

About organizational performance a statistically significant difference is observed in the average before and during COVID-19, in all dimensions, except in daily activities. During the pandemic the affectations were evident (under 3.5 considered as unfavorable) mainly in the number of personnel, services, supplies and communication, physical facilities and public policies (which disfavored the patient's attention), in that order. Almost at the limit (3.60) personnel quality is observed. This could also imply that the organizational factors were redesigned to deal with the contingency as an alternative strategy and without neglecting providing health services<sup>3</sup>, which reflects the flexibility and adaptability of the health sector recommended by some authors<sup>42,44,45</sup>.

### Random intercept model

In the random intercept model, organizational performance was considered as a dependent variable, in order to analyze changes due to the effect of COVID-19, in interaction with ethical decision making and organizational ethical climate. It is observed that the effect of COVID-19 in ethical decision making, organizational ethical climate and their interactions are statistically significant, with an adjusted intraclass correlation coefficient of 0.892. This implies that the proportion of the measurements attributable to the participants is of 89.2%, and the rest (10.8%) is due to the

**Table 2.** Difference of means of factors in ethical decision making, organizational ethical climate, and organizational performance before and during the COVID-19 pandemic

Dimension	Questions	Factor	Before	During	Difference	Significance
Ethical decision making	1	Scientific evidence	3.93	3.94	0.01	0.843
	2	Informed consent	4.51	4.55	0.04	0.26
	3-4	Bioethics Principles	4.37	4.45	0.08	0.094
	5-7	Clinical Judgment	4.47	4.50	0.03	0.24
	8-10	Communication with other professionals	3.97	3.97	0.00	0.922
	11-13	Public policies	3.16	3.18	0.02	0.65
	14	Procedures	3.81	3.71	-0.10	0.034*
	<b>Global average</b>			3.98	4.00	0.02
Organizational ethical climate	15-18	Colleagues (same profession)	4.07	4.03	-0.04	0.353
	19-22	Patients	4.07	4.01	-0.06	0.121
	23-28	Boss	3.74	3.65	-0.09	0.046*
	29-34	Hospital	3.58	3.49	-0.09	0.059
	35-40	Health professionals (all professions)	3.68	3.65	-0.03	0.312
<b>Global average</b>			3.79	3.72	-0.07	0.079
Organizational performance	41	Number of personnel	3.09	2.93	-0.16	0.033*
	42	Personnel quality	3.78	3.60	-0.18	0.006*
	43	Resources (supplies)	3.47	3.26	-0.21	0.001*
	44	Physical facilities	3.51	3.36	-0.15	0.007*
	45	Procedures	3.49	3.31	-0.18	0.006*
	46	Services	3.26	3.11	-0.15	0.049*
	47	Daily activities	3.84	3.75	-0.09	0.083
	48-49	Organization objectives	4.12	3.98	-0.14	0.002*
	50	Communication	3.47	3.28	-0.19	0.006*
	51-53	Public policies	3.38	3.36	-0.02	0.647
	<b>Global average</b>			3.56	3.44	-0.12

Source: Authors' own elaboration based on the survey.

Note\*: significant  $p < 0.05$ . Scale of Measurement= 1 (minor), 5 (major).

**Table 3.** Random intercept model to determine the effect of ethical decision making and ethical climate, before and during COVID-19, as random effect to participants

Category measured	Coefficients	Significance
<b>Intercept</b>	-3.76759	0.005599**
<b>COVID-19</b>	2.30318	0.039597*
<b>Ethical decision making</b>	1.30672	0.000382***
<b>Organizational ethical performance</b>	1.64152	1.72e-05***
<b>During COVID-19: ethical decision making</b>	-0.58074	0.042449*
<b>During COVID-19: Organizational ethical climate</b>	-0.72699	0.021082*
<b>Ethical decision making: Organizational ethical climate</b>	-0.26760	0.004602**
<b>During COVID-19: Ethical decision making: Organizational ethical climate</b>	0.17475	0.024070*

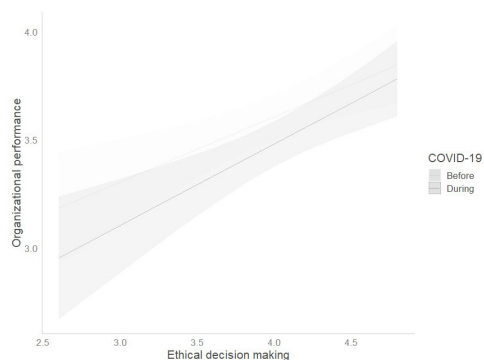
Source: Authors' own elaboration based on the survey.

Note\*: significant  $p < 0.05$ ; \*\*: significant  $p < 0.01$ ; \*\*\*: significant  $p < 0.001$





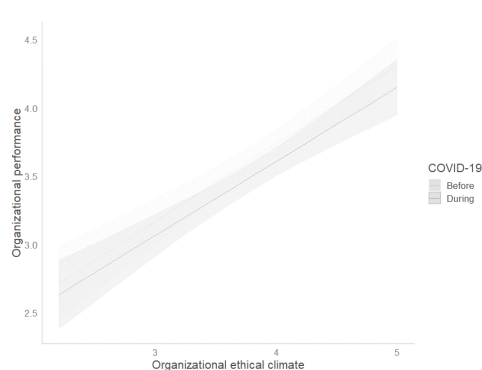
**Figure 1.** Effect of ethical decision making in organizational performance before and during COVID-19



Source: Authors' own elaboration based on the survey.

Note. Measurement score in a scale from 1 (minor) to 5 (major).

**Figure 2.** Effect of the organizational ethical climate in the organizational performance before and during COVID-19



Source: Authors' own elaboration based on the survey.

Note. Measurement score in a scale from 1 (minor) to 5 (major).

variability between measurements of the same participants (Table 3). Some research points out that during crises, groups and people are capable to adapt and collaborate when they face an extraordinary challenge<sup>46,47,48</sup>.

The coefficients in ethical decision making and organizational ethical climate showed a coefficient with statistically significant positive value ( $p < 0.001$ ) in its effect over organizational performance, which indicates that ethical decision making and organizational ethical climate, increase organizational performance per unit, as they experience an increase. This agrees with the evidence on the importance of ethics and institutional principles in the corporate culture and organizational climate<sup>49,50</sup>.

On the other hand, when ethical decision making and organizational ethical climate interact with the COVID-19 effect, their coefficients show a statistically significant

negative value  $p < 0.05$ , which indicates that the COVID-19 effect was sufficiently strong as to reduce the organizational performance. However, the interaction of the three analyzed dimensions shows a statistically significant positive coefficient ( $p < 0.05$ ). Hence despite the fact that the organizational performance decreased because of the COVID-19 effect, such fall is lessened thanks to ethical decision making and organizational ethical climate, in such a way that the model considerably explains the organizational performance with a marginal  $R^2$  of 0.62 and adjusted  $R^2$  of 0.96.

As shown in Figure 1, the ethical decision making had a positive effect on the organizational performance before and during COVID-19, despite that COVID-19 decreased the organizational performance. This behavior can also be observed in Figure 2, in which organizational ethical climate also has a positive effect on the organizational performance even with the decrease due to COVID-19; in both moments, before and during COVID-19. After a crisis situation and change, it always takes time to reach stability again, due to uncertainty<sup>46,51</sup>.

## Discussion

The COVID-19 pandemic has represented a challenge for health organizations, which not only constantly face changes in the global health conditions, but also extreme contingencies, like the COVID-19 pandemic, that can have the capacity to modify their performance, and their social structures<sup>52,53,54</sup>. Our findings in general show that the organizational performance, in spite of its decrease due to COVID-19, maintains a favorable tendency, being more representative the factor of “organization objectives” within the averages of the factors that make up the organizational performance. These results can be explained by the hospitals organizational structures of, which in general, are focused on achieving objectives and operating based on the requirements of a hospital unit, with the intention of providing the highest quality level in health attention<sup>55</sup>.

Another important aspect is the role that the organizational climate plays in the organizational performance: a supporting culture is related positively with an improvement in the organizational commitment. The empirical results explain that the organizational ethical climate is favored because of the practices exercised by colleagues and not so much because of the hospital procedures; this suggests that the influence of affective commitment with colleagues improves the performance and organizational climate<sup>56,57</sup>.

In turn, the results show that an association between the organizational ethical climate and the organizational performance exists, because organizational climate is

an important factor when generating medical attention environments in which commitment prevails, and that some of the possible dimensions to be studied within organizational climate, organizational design, and human potential relate positively with the organizational performance<sup>58,59</sup>.

Studies in which the organizational ethical climate was evaluated in hospital units in nursing personnel, presented an ethical climate of 3.5 and 2.75 respectively, results that corroborate those obtained in this study, where an average above 3.5 before and during the pandemic was maintained. This indicates that despite the fact that the COVID-19 pandemic is a contingency factor that can modify the social structure of an organization, it was not enough to affect the organizational climate based on ethics within hospitals. It could even comply with the fact that in critical conditions or unexpected goals (urgent and complex) like the pandemic, organizational culture based on ethics can contribute to group cohesion<sup>42,60,61</sup>.

Additionally, the decision making process is based on aspects that medical bioethics dictates, it applies not only to the context of the pandemic, but in a daily basis: health professionals face continuous ethical dilemmas, in which the role of bioethics helps carrying out the activities focused on providing the highest level of health in patients. According to the empirical results, the decision making process showed a higher average of clinical judgment, which is composed with a huge amount of responsibility, and those decisions are carried out following the bioethics principles; the decisions often are adapted to the institution guidelines, based on a culture in which institutional values are encouraged. When those favorable scenarios are found, becomes easier to make ethically correct decisions<sup>42,62,63,64</sup>.

This aspect encourages an ethical culture based on both individual and institutional responsibilities, motivating the process of questioning the clinical decisions before applying them to patients. Moreover, it allows accepting responsibilities that along with bioethics principles, motivates organizations to provide a quality service.

Also, similar results to other investigations show that the ethical behavior of Mexican health workers emphasizes clinical quality, interventions, values, and relationships that favor the team communication, as well as satisfaction in the doctor-patient relationship, interpersonal relationships, clarity and coherence in collective values<sup>65,66,67</sup>.

## Conclusions

The role hospital units play, especially during COVID-19 pandemic, is considered strategic to a point where the expenditure federal budget in Mexico, in social protection,

social security and health coverage, suffered an important increase of 36.4% from 2019 to 2021<sup>68</sup>. However, in the daily processes very few times is highlighted the importance deserved to the acts of decision making based on ethics and work climate, particularly in conditions so complex like those of a pandemic.

Late attention to patients, wrong illnesses diagnosis, infections inside hospitals, that are often linked to the absence of clear procedures in the attention, the lack of personnel, their inadequate schedules and salaries, the scarce availability of personnel protection equipment, derived from the pandemic could have affected, both the ethical climate and the decisions based on ethics. In this environment of high complexity and speed, where the action prevails over planning, it wouldn't be rare to sacrifice ethical decision making. However, before and during COVID-19 surveyed health professionals in hospital units almost always maintained the same ethical criteria in their decision making before and during the pandemic. Nonetheless, special attention must be paid in the procedures, policies, guidelines, and institution processes, which promote decision making in favor of the patient's health<sup>3,42</sup>.

The ethical climate in the studied hospital units has experimented challenges before and especially during COVID-19, averages are sensibly low (from "almost always" to "regularly") both for hospitals and health professionals, particularly related to "superiors or bosses". A systematic review shows that the health professionals less likely to rotation and with a low level of ethical stress evaluated the ethical climate more positive, being an important factor during the pandemic for ethical decisions, since many professionals rotated continuously within the hospital services; constant changes in the environment within a short time can force little adaptability to indications by superiors<sup>69,70</sup>.

The factor that had already been suffering affectations, but were accentuated with the pandemic, was the organizational performance, mainly in the number of personnel, services, supplies and communication, physical facilities, and public policies (that disfavor patient attention), as well as personnel quality. Organizational performance was affected by the COVID-19 pandemic in technical elements such as the strategy and structure of institutional processes, with the number of professionals and their training being the basis for promoting teamwork that is reflected in compliance with organizational objectives<sup>55</sup>.

However, the mixed effects model allowed visualizing that the organizational performance is benefited when ethical decisions and an ethical climate prevail. That is, that the COVID-19 effect, in the ethical decision making, organizational ethical climate and their respective interactions

are associated. The model also allowed contrasting that despite the fact that the performance decreased due to COVID-19, such fall is lessened when ethical decisions and an ethical climate prevail. This would imply that in an adverse environment, decision making based on ethics and an ethical climate, should be maintained in the organizations like the ones studied, to stop or avoid a more dramatic fall in the performance under complex circumstances. The results coincide with the scientific evidence, in which ethics has a positive effect on organizational performance, because ethics influences motivation, leadership and trust among health professionals, due to this, if communication between them is affected, performance tends to decrease<sup>71,72,73,74,75</sup>.

Based on the results of this research, the design of mechanisms of visual communication, such as boards, news bulletins, posters in strategic places to communicate organizational redesigns, according to each department and hierarchy, could be recommended; avoid “general” notices that do not indicate in a precise way the adaptations and adjustments in activities. This should be done as often as it is needed (daily or weekly), in line with changes in the functions and in the people responsible. Avoiding taking for granted that the collaborators know the changes is relevant to generate the same information with the patients. Also it is recommended to promote in such news bulletins, the procedures, policies, guidelines and institution processes, in accordance to national health policies, and generate mechanisms so that health workers interiorize them. Short training courses on organizational design, decision making and leadership for superiors or bosses become useful to solve communication, management and motivation issues. Chats, seminars, webinars about the importance of maintaining and reinforcing the ethical decision making and ethical behavior should be implemented. If possible, make arrangements to obtain anonymous complaint boxes, and reward the successful cases with positive opinions, but also penalize those that are not reinforcing ethics, respect, transparency; these actions will enhance people’s and collaborators’ trust in the health institutions. Besides, it becomes essential to start a diagnosis about the position and responsibilities organizational structure, as well as the requirements of new infrastructure and technology, so that health professionals have the necessary tools to perform their duties and patients will be benefited (using a financial analysis to calculate the cost/benefit); modeling financial scenarios that support the performance of health personnel (schedules, salaries and job benefits) compared with the cost of rotation, exhaustion that the personnel suffers from infections, and its implications for the public and private health system will be vital.

In future research it is recommended to increase the sample size and include more health professionals in public and private hospitals; furthermore, the authors suggest to use

a proportional probability sampling in accordance to each respondent and to each unit of analysis; to apply the surveys face to face as well as carrying out a post-pandemic study to contrast results will enhance these findings.

## Conflict of interest

The authors have no conflict of interest to declare.

## Authors’ Contributions

Conceptualization and design: A.M.C, Y.M.M; Methods: A.M.C, Y.M.M, A.B.T.N, M.A.M.V.M; Data collection and software: A.M.C; Data analysis: A.M.C; Principal investigator: A.M.C; Research: A.M.C, Y.M.M; Manuscript preparation: A.M.C, Y.M.M; Manuscript revision: A.B.T.N, M.A.M.V.M; Visualization: A.M.C, Y.M.M, A.B.T.N; Supervision: Y.M.M, A.B.T.N, M.A.M.V.M.

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