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Exploratory factor analysis of the dimensions of moral resilience in the Covid-19 era

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Abstract – Moral resilience often arises from uncertain and risky situations. Organizations have shown resilience in their identity, reputation, and image during the pandemic. Specifically, in terms of identity, there are two distinct dimensions related to assimilation and adaptation, particularly in the context of migration and interaction with native communities. This study analyzed the intricate connections between resilience and its various indicators. A cross-sectional, psychometric, and confirmatory study involved 100 students from a public university in central Mexico, considering their professional practices and social service to migrants. The Migratory Resilience Scale, encompassing dimensions of adaptation and assimilation, was used. The modeling process entailed three stages: 1) establishing parameters indicating optimal levels of normal distribution, sphericity, adequacy, validity, linearity, and homoscedasticity; 2) examining relationships between factors and indicators using grouping techniques such as factor analysis, clusters, as well as correlations and covariances; 3) empirically testing the model using adjustment and residual parameters to validate the null hypothesis of significant differences among the factors reported in the literature and study observations. The findings revealed a factorial structure of four components with indicators representing assimilation and late adaptation to the pandemic. Delving into the state-of-the-art, which focuses on four phases—hypothesis, specification, identification, and estimation—the study discusses the scope and limitations of the proposed model, taking into account the hybrid modeling of exploratory and confirmatory factor analysis and multiple linear regression.

Keywords – Bioethics, COVID, Ethics, Morality, Resilience.

Introduction

Bioethics focuses on the ethical principles that guide decision-making in biomedicine and biomedical research (Rushton, 2023). These principles express its dynamic and multidimensional character (Crespo, 2022) and include respect for autonomy, beneficence, non-maleficence, and justice. Resilience, on the other hand, refers to the ability of individuals, communities, or systems to adapt, recover, and continue to function effectively in the face of adversity or stress.

From this perspective, bioethics can influence the promotion of resilience by ensuring that decisions and actions in health and biomedicine are ethical and respect the fundamental values of people and communities (Rushton et al., 2017). For example, by ensuring equitable access to health care and resources, support systems and people's ability to cope with and recover from difficult situations can be strengthened.

Furthermore, resilience may also be a topic of interest in biomedical research ethics, especially concerning protecting participants in clinical studies and the ethical management of risks associated with medical research (Holtz et al., 2018). Bioethics and resilience are interconnected to the extent that ethics in healthcare and research can contribute to promoting the capacity of individuals and communities to adapt and recover from health challenges and adverse situations.

Bioethics and resilience are crucial aspects of healthcare practice, especially in times of crisis like the COVID-19 pandemic. The Mindful Ethical Practice and Resilience Academy (MEPRA) focuses on equipping nurses with the skills necessary to address ethical challenges and maintain resilience in their practice (Rushton, 2016). Developing individual capacities for moral resilience involves ethical competence, ethical education, self-regulation, and cultivating educational resilience in virtual classrooms. Ethical reasoning and emotional resilience are essential for frontline clinicians facing moral distress and ethical challenges during the pandemic. Resilience goes beyond individual capacity, and the social dimensions contributing to stress and ethical dilemmas must be considered. Strengthening teaching and research on ethical issues is critical to fostering ethical reasoning and resilience in healthcare practice. Ethical competence, emotional resilience, and social awareness are essential for healthcare professionals to overcome ethical challenges and maintain resilience.

Bioethics and resilience are interconnected concepts that have gained significant attention in various fields (Rushton et al., 2022). The Johns Hopkins Berman Bioethics Institute provides resources for frontline clinicians and emphasizes the importance of social resilience in healthcare settings. This highlights the need for healthcare workers to develop resilience to prevent absenteeism during disasters, such as bioterrorism or pandemics. The concept of moral resilience has also been explored, focusing on the ability of individuals to cope with ethically challenging situations. This aligns with conscious ethical practice, which aims to equip nurses with the skills to maintain resilience in moral dilemmas.

In biotechnology, companies are encouraged to adapt to changing conditions by combining innovation with a focus on efficiency and resilience (Rushton et al., 2016). This echoes the notion that resilience goes beyond reductionism and that ethical and social dimensions play a crucial role in enhancing resilience across the lifespan. Furthermore, the vulnerability-resilience nexus has been identified as a critical intersection, emphasizing the importance of promoting resilience in the face of vulnerability. This is particularly relevant in clinical research, where people with a strong interest in bioethics and artificial intelligence can contribute to promoting resilience in healthcare settings. The literature suggests that bioethics and resilience are intertwined concepts vital in diverse fields, from healthcare to biotechnology. Individuals and organizations can effectively address ethical challenges and adapt to changing conditions by understanding and promoting resilience.

Moral resilience in the face of COVID-19 can have various dimensions since it implies the ability to maintain and strengthen our ethical and moral values in situations of crisis and adversity.

Personal integrity is the ability to remain faithful to one's ethical and moral principles even in difficult circumstances, resisting the temptation to compromise those values out of convenience or external pressure (Münch et al., 2021).

Empathy and compassion are the ability to understand and share the feelings and experiences of others, especially in times of suffering and need. They involve acting compassionately and solidarity with those struggling with illness, grief, or economic difficulties (Lützén & Ewalds-Kvist, 2013).

Social responsibility is the commitment to contribute to collective well-being and take responsible actions that help protect the health and safety of the community in general, even at the cost of personal sacrifices (Monteverde, 2016).

Adaptability and flexibility are the ability to adapt to changing circumstances and respond constructively to new challenges and ethical obstacles that arise during the pandemic, such as making difficult decisions about the distribution of limited resources or the balance between public health and needs economic (Spilg et al., 2022).

Emotional strength involves effectively managing stress, anxiety, and uncertainty and maintaining calm and mental clarity to make ethical decisions even under high emotional pressure (Delgado et al., 2021).

However, the dimensions of moral resilience have not been observed in contingent scenarios such as the pandemic. Therefore, the objective of the present work was to compare the theoretical dimensions with empirical observations to anticipate a model of moral resilience.

Are there significant differences between the dimensions of moral resilience reported in the literature concerning the observations of the present study?

The hypothesis that guides this research suggests that the structure of the dimensions of theoretical resilience is different from the observed structure since moral resilience has been observed in formal and isomorphic institutional settings. Still, the present work creates an unstructured scenario of the ethical dimensions because the sample surveyed seeks to avoid the pandemic through confinement and social distancing (Young & Rushton, 2017).

Method

Design. Documentary, transversal, and exploratory study.

Sample. One hundred students (M = 21.3 SD = 3.4 years and M = 8'907.00 SD = 698.00 monthly income) were selected for their affiliation and participation in service and professional practices.

Instrument. Moral Resilience Scale. It includes six dimensions related to personal integrity (“I never compromise my ethical principles for professional or personal convenience”), ethical capacity (“I can make difficult decisions even when the results could negatively affect me”), ethical coping (“I can remain calm in situations complicated"), moral

flexibility ("I can adapt my ethical values to new situations without compromising my fundamental principles), pressure resistance ("I remain firm in my ethical convictions when faced with pressure to act contrary"), ethical growth ("I actively look for opportunities to learn from my negative experiences.") Each item is answered with five options ranging from 0 = "not at all agree" to 5 = "quite agree." The reported reliability ranges between 0.780 and 0.795, although it reached a value of .764 in the present work.

Procedure. The sample was contacted via email. They were informed about the objectives and those responsible for the study. The functions of the participants were indicated to justify the non-remuneration for their responses to the scale. However, the results of the survey were offered to be delivered.

Analysis. Data were captured in Excel and processed in JASP. Reliability, validity, fit, and residual parameters were estimated to contrast the hypothesis related to significant inferences between the theoretical structure and empirical observations.

Results

The adequacy analysis using KMO indicates the relevance of the factor analysis by establishing the number of indicators with positive relationships concerning the factor. The KMO value = 0.812 suggests the relevance of four of six factors (see Fig. 1).

The analysis of sphericity suggests the relevance of factor analysis. The first factor related to personal integrity was associated with items 2, 3, 5, 7, 9, 11, and 15, with values ranging between 0.627 and 0.964. The second factor indicative of ethical capacity was linked to items 8, 10, and 18, with values between 0.618 and 0.98. The third factor alluding to ethical coping was associated with indicators 3 and 16, with respective values of 0.491 and 0.903. The fourth descriptive factor of labor flexibility included variables 4 and 14 with values of 0.665 and 0.706.

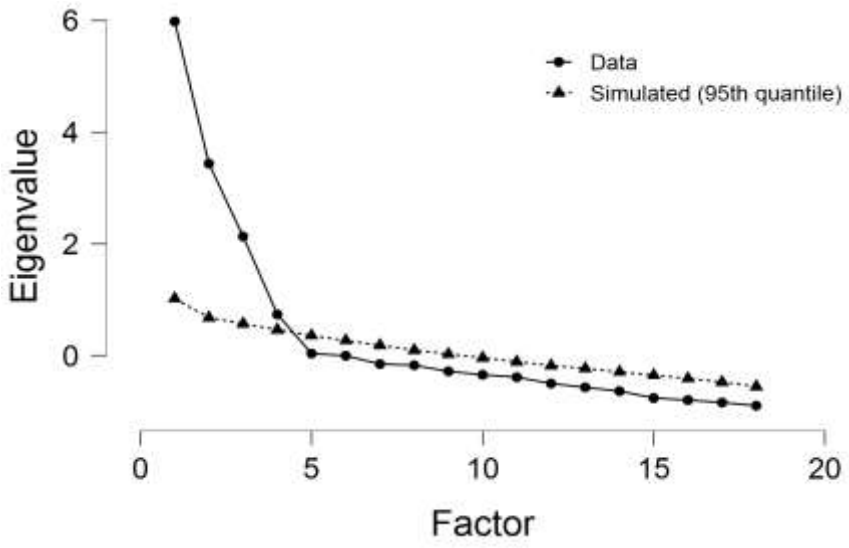

Fig. 1. Eigenvalues

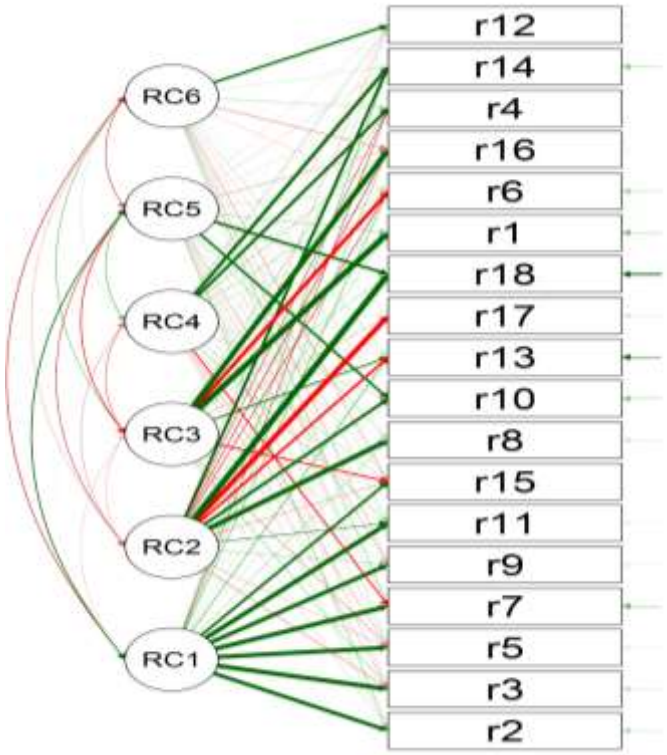

Fig. 2. Factor model

The fit and residual values [x2 = 126.875 (60 df) p = 0.001; RMSEA = 0.118; TLI = 0.920] indicate that the hypothesis related to the significant differences between the theoretical structure and the observations made in the present work was not rejected.

Discussion

The current study contributes significantly to the existing body of knowledge by empirically contrasting a theoretical model outlined in the literature on moral resilience during the pandemic. The findings reveal that four key factors—personal integrity, ethical capacity, coping, and moral flexibility—play a prevalent role. While the prevailing state of the art identifies six factors, this study suggests consolidating them into four explanatory factors, which account for 78% of the total variance.

Moral resilience is crucial to healthcare professionals' ability to navigate challenging ethical situations and maintain their integrity in the face of moral adversity (Heinze et al., 2021). Moral resilience in registered nurses focuses on cultural adaptation and validation. The study used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to establish a three-factor structure for the Chi-RMRS tool, with factor loadings ranging from 0.42 to 0.80 (Antonsdottir et al., 2022). Furthermore, the study reported that the standard error of measurement (SEM) and most minor detectable change (SDC) were 3.522 and 9.763, respectively (Faraco et al., 2022). Integrity plays a vital role in moral resilience, as it is a foundation for people to maintain or restore their integrity in response to moral adversity (Gibson et al., 2020). This alignment of intentions, words, thoughts, and actions contributes to moral integrity and resilience (Gujral et al., 2020). Additionally, perceived organizational effectiveness has been linked to nurse leaders' moral well-being, including moral injury and resilience during public health crises.

In nursing education, examining the connections between moral distress, moral courage, and moral resilience is crucial to understanding how university students acquire the skills to navigate morally difficult situations (Metselaar & Molewijk, 2023). Furthermore, there has been an exploration of frontline resilience across various sectors, such as retail, to comprehend the impact of moral disengagement on employees' ability to confront moral challenges (Nishikawara & Maynes, 2023). Scholarly literature underscores the significance of moral resilience in healthcare, academic, and other professional settings (Sofer, 2017). By fostering integrity, addressing moral distress, and enhancing organizational efficacy, individuals can confront moral hardships and uphold their integrity in demanding circumstances.

The present work recommends extending the study to other samples to increase the percentage of explained variance. Two additional factors should be included to adjust the proposed model to the structure reported in the literature.

Conclusion

This study aimed to assess the theoretical framework of moral resilience outlined in the existing literature and compare it with the observed structure in our current work. The findings revealed the prominence of four key factors—personal integrity, ethical capacity, ethical coping, and moral flexibility—which accounted for 78% of the variability. It is suggested that the research scope be broadened to include other participant samples and that the sample size be boosted to enhance the proportion of explained variance.

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Exhibit

Personal integrity

- I never compromise my ethical principles for personal or professional convenience.
- I always keep my promises and commitments, even when doing so is difficult.

Ethical Decision-Making Capacity

- I can make difficult decisions even when the results could negatively affect me.
- I carefully consider the ethical consequences of my actions before making a decision.

Coping with Difficult Ethical Situations

- I can maintain calm and clear thinking in ethically complicated situations.
- I look for constructive solutions even amid moral crises.

Moral Flexibility

- I am able to adapt my ethical values to new situations without compromising my fundamental principles.
- I can recognize and correct past ethical mistakes to grow and improve.

External Pressure Resistance

- I remain firm in my ethical convictions even when facing external pressures to act contrary.
- I am not easily influenced by the opinions of others when it comes to ethical issues.

Learning and Ethical Growth

- I actively seek opportunities to learn from my ethical experiences, both positive and negative.
- I am open to receiving constructive feedback on my ethical actions and using it to improve.