MEDWIN PUBLISHERS
Committed to Create Value for Researchers

Journal of Clinical Science & Translational Medicine
ISSN: 2993-8260

Public Administration and the Management of Beliefs in Risks and Dangers in the COVID-19 Era

Lirios CG[1]*, Tlapale JL[2], Ornelas RMR[3], Vazquez FRS[4] and Campas CYQ[5]

[1]Universidad Autonoma de la Ciudad de Mexico, Mexico
[2]Universidad Autonoma de Tlaxcala, Mexico
[3]Universidad de Sonora, Mexico
[4]Universidad Autonoma del Estado de Morelos, Mexico
[5]Instituto Technologico de Sonora, Mexico

Research Article
Volume 5 Issue 1
Received Date: August 08, 2023
Published Date: September 20, 2023
DOI: 10.23880/jcstm-16000120

***Corresponding author:** Lirios CG, Universidad Autonoma de la Ciudad de Mexico, Mexico, Tel: +525525347531; Email: cruzlirios@icloud.com

Abstract

Beliefs, defined as unverified information of risk and danger, are preponderant factors in disaster management. In the case of the pandemic, beliefs define decisions and behaviors. The objective of this study was to confirm an explanatory model of beliefs about the risks and dangers of the pandemic. A cross-sectional, correlational and psychometric study was carried out with a sample of 100 employees of a civil protection institution in central Mexico. The results indicate the confirmation of the two dimensions of risks and dangers, although with a reduction of their indicators. The findings correspond to the reviewed literature because it emphasizes the mistrust between authorities and the governed. It is recommended to extend the model to anticipate risk exposure scenarios.

Keywords: Public Administration; COVID-19; Beliefs; Risks; Dangers

Introduction

Risk management models are structured frameworks or approaches used to identify, analyze, assess, and manage risks in an organization, project, or activity [1]. These models help make informed decisions to minimize potential losses and maximize opportunities.

Qualitative risk analysis: This approach involves identifying risks and rating them in terms of their probability and impact using qualitative scales (eg, low, medium, high). This model is useful when quantitative data is limited or when a rapid risk assessment is needed [2].

Quantitative risk analysis: Unlike the qualitative model, this approach uses numerical and statistical data to assess risks [3]. It relies on techniques such as probabilistic analysis and Monte Carlo analysis to estimate the probabilities and consequences of risks. Provides a more accurate and detailed understanding of the potential impact of risks.

Risk Management Maturity Model: This model assesses the maturity and effectiveness of risk management practices in an organization [4]. It is based on a scale of levels that goes from the initial level to the optimized level. It helps organizations identify areas for improvement and set goals to strengthen their risk management capabilities.

Scenario analysis: This approach involves the identification and evaluation of different possible scenarios that could affect the organization or project [5]. It then analyzes how each scenario would affect the objectives and how the associated risks can be mitigated.

Fault Tree Analysis (FTA): It is a deductive technique that seeks to identify the causes of an undesired event through the creation of a logical tree of events that lead to the undesired result [6]. It is commonly used in industries such as aeronautics, nuclear and petrochemicals.

Failure Modes and Effects Analysis (FMEA): It is a systematic method to identify and evaluate the possible failure modes of a system and analyze their effects on performance [7]. It focuses on preventing and correcting problems before they occur.

Standards-based risk analysis (ISO 31000): The ISO 31000 standard provides principles, frameworks and processes for risk management [8]. It helps organizations to establish a systematic and coherent approach to identify, analyze and treat the risks in their activities.

Cost-benefit analysis: This model compares the costs associated with implementing risk mitigation measures with the expected benefits derived from reducing the impact of risks [9]. It helps make informed decisions about how to allocate resources to manage risk. Risk management is essential in any field to make informed decisions and protect the interests of the parties involved [10]. Risk management is not only limited to technical and economic aspects; it also involves social dimensions that are critical to understanding and effectively addressing risks. These social dimensions consider the impact that risks have on individuals, communities and society in general.

Some of the most important social dimensions of risk management are as follows:

Social vulnerability: Social vulnerability refers to the ability of individuals and communities to resist, adapt and recover from risks and disasters [11]. Factors such as socioeconomic level, accessibility to basic services, education, gender and age influence social vulnerability.

Community participation: It is essential to involve the community in the risk management process [12]. Community participation makes it possible to better understand local risks, identify solutions and promote the empowerment of people to take proactive measures against risks.

Equity and social justice: Risk management must be equitable and fair, preventing certain social groups from being disproportionately affected by risks or their needs being ignored in mitigation and response strategies [13].

Awareness and education: Public awareness of risks and education on prevention and response are essential to reduce exposure and impact of risks [14]. Promoting a culture of prevention and resilience can make a difference in protecting the community.

Inclusion of vulnerable populations: It is essential to consider the most vulnerable populations, such as people with disabilities, the elderly, children and minorities, in risk management planning [15]. Your needs must be considered to ensure an appropriate and fair response.

Effective communication: Transparent and effective communication is key during all stages of risk management [16]. Informing the population about risks, prevention measures and response actions helps to reduce uncertainty and gain confidence in management efforts.

Social and business responsibility: Organizations, both public and private, have a social responsibility to contribute to risk management and reduce the negative impacts of their activities on the community and the environment [17].

Climate change adaptation: With the risks related to climate change increasing, it is crucial to consider adaptation and resilience in the face of extreme weather events and other natural events [18]. The social dimensions of risk management emphasize the importance of considering people, communities, and ethical values in the identification, assessment, and mitigation of risks [19]. Effective risk management must be inclusive, equitable and consider the general welfare of society. Measuring the social dimensions of risk management involves collecting data and obtaining relevant information on how risks affect individuals and communities, and how mitigation actions can address their needs and vulnerabilities.

Surveys and questionnaires: Surveys and questionnaires targeting the population affected or potentially affected by risks can be conducted to obtain information about their perception of risks, their level of preparedness and resilience, as well as their needs and concerns [20].

Interviews and focus groups: Individual interviews and focus groups are qualitative techniques that allow a deeper understanding of the experiences and views of individuals and communities in relation to risks and risk management [21].

Vulnerability and resilience indicators: Specific indicators can be developed that measure the social vulnerability and resilience of a community to risks [22]. These indicators can be based on socioeconomic factors, health, education, access to services, etc.

Demographic and socioeconomic data analysis: Use available demographic and socioeconomic data (eg, census, government statistics) to better understand population composition and distribution, helping to identify vulnerable groups [23].

Social impact assessment: Conduct social impact assessments to determine how risks affect different segments of the population and assess the effects of implemented risk management measures [24].

Participatory mapping: Involve the community in the identification and mapping of local risks and resources [25]. This approach makes it possible to identify local knowledge and resources that can be used for risk management.

Inequalities and equity analysis: Assess how risks and management responses affect different groups unequally, and work to reduce disparities and improve equity in risk protection and response [26]. Case studies: Carry out case studies on specific risk management situations to analyze how the social dimensions were addressed and what results were obtained [27]. However, the state of the art seems to only include variables that are related in their same theoretical matrix [28]. Such are the cases of the management dimensions in risks, dangers, vulnerabilities, resilience and stigma. In the case of the pandemic, these five dimensions interact to form an ecosystem of threats and contingencies focused on the responsibilities of authorities and the governed. They exhibited the shortcomings of the public health system and social prevention habits.

Therefore, the objective of this paper is to model the five dimensions to be able to anticipate risk aversion or propensity scenarios. In addition, the proposal for anti-COVID-19 policies that make it possible to define responsibilities around risk communication. Are there significant differences between the revised risk management framework and student assessments on these dimensions through self-report?

Hypothesis 1: Anti-COVID-19 policies focused on distancing and confinement of people limited risk management and reduced it to perceptions of stigma by holding health authorities accountable and separating other public officials.

Hypothesis 2: As the pandemic intensified, risk management was reduced to risk perceptions where expectations of incommensurability, unpredictability, and uncontrollability prevail.

Hypothesis 3: Once immunized, the parties involved in risk management re-emphasized the prevailing relationship between hazard, vulnerability and resilience, although the stigma led to shifting trust towards science and technology rather than towards public administration, risk communication and damage control.

Method

First study

A documentary, cross-sectional, exploratory, retrospective and systematic review of the literature, extraction of risk management dimensions and establishment of concepts was carried out through focus groups in samples of 30 people (M = 26.3 SD = 2.3 age and M = 11'235.00 DE = 792.00 USD monthly income) and 300 sources indexed to international repositories. The Prisma format was used for the collection of sources, the selection of summaries and the definition of the dimensions of risk management according to the period from the pandemic from 2020 to 2023. The focus groups were organized in three teams of 10. The opening included the activating questions: How has the pandemic impacted your academic training? Do you trust that if there was a vaccine you would apply it as many times as necessary? Do you trust those who manage the vaccines to get the right ones for the immunization of the majority? A Delphi study was carried out in which the selected concepts were included, and the respondents had to rate the clarity, relevance and specificity of the variable, as well as recommend any modification. In a first phase, ratings were carried out that ranged from 0 = "not at all satisfactory" to 5 = "quite satisfactory". In a second phase, the initial scores were compared with the averages in order to reflect the differences. In the third phase, the respondents modified or reiterated their rating on the concepts.

Second Study

A correlational, cross-sectional, and exploratory work was carried out with a sample of 100 students (M = 25.7 DE = 3.4 age and M = 10'234.00 DE = 243.00 USD monthly income) postgraduate in risk management.

The Pandemic Risk Management Scale (EGRP-20) was built, which includes 20 items alluding to risk management ("The pandemic will intensify in closed spaces"), hazard management ("The pandemic will be transmitted in open spaces"), vulnerability management ("The pandemic will affect smokers"), resilience management ("The pandemic will

intensify the marketing of anti-COVID-19 products"), stigma management ("The authorities have been exhibited by the pandemic"). Each statement includes five response options ranging from 0 = "not at all agree" to 5 = "strongly agree". The reliability reached alpha and omega values of 0.783 and 0.784 for the general scale and between 0.763 and 0.780 for the subscales. The validity obtained a threshold of 0.342 to 0.657. The adequacy (KMO = 0.6782) and the sphericity (X2 = 213.24 (34gl) p > 0.001) reached the minimum values for the subsequent analysis.

Third Study

The empirical test of the model was carried out with 100 employees (M = 29.3 SD = 4.5 age and 16'349.00 SD = 873.00 USD monthly income) from agencies related to civil protection, risk management and communication in a municipality in central Mexico. . The Pandemic Risk Management Scale (EGRP-20) was used.

The focus groups, the Delphi technique, reliability and validity, as well as the empirical test were carried out using the Jitsi platform https://meet.jit.si/FollowingPathsUndermineHappily, with a prior guarantee of confidentiality and anonymity, as well as non-remuneration for the participation in the study and follow-up to the guidelines of the American Psychological Association (APA) in its section on studies with humans. The data from the three studies were captured in Excel and processed in JASP version 16. The reliability and validity coefficients were estimated, as well as adequacy and sphericity, adjustment and residuals for the contrast of the hypothesis. Values close to unity except for the residuals were assumed as evidence of non-rejection of the hypotheses.

Results

In the first study, the eigenvalues suggest a two-factor limit for the exploratory factor model of risk management. It means then that in terms of prevention and reaction to the pandemic, risk management and hazard management are preponderant factors (Table 1).

	MSA
Overall MSA	0.813
r1	0.85
r2	0.803
r3	0.773
r4	0.771
r5	0.896
r6	0.9
r7	0.83
r8	0.922
r9	0.76
r10	0.844
r11	0.711
r12	0.876
r13	0.797
r14	0.855
r15	0.613
r16	0.829
r17	0.75
r18	0.865
r19	0.747
r20	0.781
r21	0.617
r22	0.837
r23	0.765
r24	0.428
r25	0.744

Table 1: Kaiser-Meyer-Olkin Test**.**
Source: Prepared with study data

Once the two predominant factors have been established, the exploratory factorial model corroborates the relationships between the two factors with respect to the indicators. There are more direct, positive and significant relationships (thick and green lines) compared to negative and significant relationships (red and thick lines). The third and fourth factors do not reach the minimum essential relationships to be considered components of the management model (Table 2).

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Uniqueness
r1		0.87				0.173
r2	0.831	0.505				0.18
r3		0.645				0.264
r4		0.928				0.112
r5	0.846					0.084
r6	0.993					0.041
r7			0.721			0.22

r8	0.932					0.069
r9		-0.747	0.41			0.053
r10	0.945					0.088
r11				0.784		0.205
r12	0.755		-0.42			0.172
r13				0.575		0.549
r14	0.753			0.502		0.079
r15			0.623			0.599
r16	0.635	0.446	0.422			0.151
r17				0.767		0.35
r18	0.664	-0.529				0.048
r19		0.855				0.153
r20			0.555	-0.51		0.229
r21				0.426		0.798
r22		0.563				0.296
r23				0.692		0.36
r24					1.008	0.075
r25			0.971			0.129

Table 2: Factor Loadings.
Source: Prepared with study data

The relationships between the indicators suggest the prevalence of two preponderant factors that would be associated with each other and with the respective indicators. The covariance matrix reveals the inclusion of at least one other factor not included in the model and for which the literature identifies it as risk aversion or propensity expectations (Table 3).

	SumSq. Loadings	Proportion var.	Cumulative
Factor 1	6.851	0.274	0.274
Factor 2	4.637	0.185	0.459
Factor 3	3.251	0.13	0.59
Factor 4	3.259	0.13	0.72
Factor 5	1.525	0.061	0.781

Table 3: Factor Characteristics.
Source: Prepared with study data

In the second study, the factorial model confirms the two factors highlighted in the first study. The exploratory factorial model suggested the prevalence of two factors related to risk management and hazard management to explain the impact of the pandemic on the student community, although relationships greater than unity are observed, suggesting an increase in the sample (Table 4).

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1	-0.118	0.088	0.138	-0.179
Factor 2	-0.118	1	0.169	-0.038	0.022
Factor 3	0.088	0.169	1	-0.093	-0.322
Factor 4	0.138	-0.038	-0.093	1	0.053
Factor 5	-0.179	0.022	-0.322	0.053	1

Table 3: Factor Correlations.
Source: Prepared with study data

Fit parameters and residuals [GFI = 0.811; MFI = 0.019; RMSEA = 0.000; SRMR = 0.244] suggest non-rejection of the hypotheses. It means then that the pandemic impacted risk management and hazard management more than vulnerability, resilience and stigma management. In addition, the health crisis reduced risk management and danger management to a minimum until both dimensions were unlinked in a preventive model.

Discussion

The contribution of this work to the state of the art lies in the confirmation of a risk and danger management model in the face of the pandemic. The literature consulted suggests

that the proposed management model would include five dimensions related to risk, danger, vulnerability, resilience and stigma. In the present study, the model was reduced to two preponderant dimensions of risk and danger. In addition, by confirming this dual structure, the factorial model indicates that it should be reduced in terms of indicators. The results are consistent with the literature that suggests an impact of the health crisis on risk management models. The state of the art warns that vulnerability increased, resilience intensified and stigma emerged to explain the distrust of citizens towards their rulers. The present work found that vulnerability, resilience and stigma are not part of the management of the pandemic. In addition, understood as a translation of content and transfer of knowledge, the management of the pandemic consists of the interpretation of risks and danger, although reduced to an expression of uncertainty. Therefore, it is advisable to include in the model a third factor related to the perception of risk to explain the impact of COVID-19 on its management in the public university and in the civil protection institution. The limits of this work are those related to the size of the sample, since when the factors and their relationships with indicators are reduced, the solution is to increase the size of the sample to establish a minimum number of responses to the instrument that allows the validity of the test to be achieved. The theoretical dimensions. It is recommended to increase and diversify the size of the sample towards the civilian population to be able to analyze the impact of the health crisis on its management. The practical sense of the study lies in the design of a civil protection policy oriented to the management of risks and dangers. Such an intervention program would include a risk communication strategy associated with aversion and exposure to risks of contagion, illness, and death from COVID-19. The evaluation of the policy would be given in the expectations of control of the situation, the efficiency in the use of anti-COVID-19 devices and the follow-up of the confinement.

Conclusion

The objective of this work was to confirm a pandemic management model. The results show that the model was reduced to a minimal expression of two dimensions and indicators. It means then that the impact of the health crisis on management was significant and forceful. Therefore, it is recommended to extend the model to risk perceptions to be able to anticipate contingency and uncertainty scenarios.

References

1. Wong CML, Jensen O (2022) The Paradox of Trust: Perceived Risk and Public Compliance during the COVID-19 Pandemic in Singapore. In: Wong CML, et al. (Eds.), COVID-19. 1st(Edn.), Taylor & Francis Group, pp: 189-198.

2. Heiss R, Gell S, Rothlingshofer E, Zoller C (2021) How Threat Perceptions Relate to Learning and Conspiracy Beliefs about COVID-19: Evidence from a panel study. Personality and individual difference 175: 110672.

3. Comfort LK (2022) Cognition, Collective action, and COVID-19: Managing Crises in Real Time. Public Performance & Management Review 45(4): 894-915.

4. Yeo SL, Phua DY, Hong YY (2022) The Effects of Dangerous World Beliefs on COVID-19 Preventive Behaviors in Singapore: The Moderating Role of Public Health Communication. International Journal of Strategic Communication 16(3): 485-498.

5. Chan EYY, Huang Z, Lo ESK, Hung KKC, Wong ELY, et al. (2020) Sociodemographic Predictors of Health Risk Perception, Attitude and Behavior Practices Associated with Health-Emergency Disaster Risk Management for Biological Hazards: The Case of COVID-19 Pandemic in Hong Kong, SAR China. International Journal of Environmental Research and Public Health 17(11): 3869.

6. Dryhurst S, Schneider CR, Kerr J, Freeman AL, Recchia G, et al. (2022) Risk Perceptions of COVID-19 around the World. In: Dryhurst S, et al. (Eds.), COVID-19. 1st (Edn.), Taylor & Francis Group, pp: 162-174.

7. Pickles K, Cvejic E, Nickel B, Copp T, Bonner C, et al. (2021) COVID-19 Misinformation Trends in Australia: Prospective Longitudinal National Survey. Journal of Medical Internet Research 23(1): e23805.

8. Birhanu Z, Ambelu A, Fufa D, Mecha M, Zeynudin A, et al. (2021) Risk Perceptions and Attitudinal Responses to COVID-19 Pandemic: An Online Survey in Ethiopia. BMC Public Health 21(1): 981.

9. Quansah F, Anin SK, Hagan JE, Agormedah EK, Oduro P, et al. (2022) Analysis of COVID-19 Risk Perception and its Correlates among University Students in Ghana. COVID-19 2(8): 1125-1138.

10. Ghaddar A, Khandaqji S, Awad Z, Kansoun R (2022) Conspiracy Beliefs and Vaccination Attempt for COVID-19 in an infodemic. PLoS One 17(1): e0261559.

11. Coombs WT (2020) Public Sector Crises: Realizations from Covid-19 for Crisis Communication. Partecipazione e Conflicto 13(2): 990-1001.

12. Tchetchik A, Kaplan S, Blass V (2021) Recycling and Consumption Reduction following the COVID-19 Lockdown: The Effect of Threat and Coping Appraisal,

Past Behavior and Information. Resources, Conservation and Recycling 167: 105370.

13. Wnuk A, Oleksy T, Maison D (2020) The Acceptance of Covid-19 Tracking Technologies: The Role of Perceived Threat, Lack of Control, and Ideological Beliefs PloS one 15(9): e0238973.

14. Song S, Yao X, Wen N (2021) What Motivates Chinese Consumers to avoid Information about the COVID-19 Pandemic? The Perspective of the Stimulus-Organism-Response Model. Information Processing & Management 58(1): 102407.

15. Cori L, Bianchi F, Cadum E, Anthonj C (2020) Risk Perception and COVID-19. International Journal of Environmental Research and Public Health 17(9): 3114.

16. Warren GW, Lofstedt R (2022) Risk Communication and COVID-19 in Europe: Lessons for Future Public Health Crises. Journal of Risk Research 25(10): 1161-1175.

17. Clark C, Davila A, Regis M, Kraus S (2020) Predictors of COVID-19 Voluntary Compliance Behaviors: An International Investigation. Global transitions 2: 76-82.

18. Obrenovic B, Du J, Godinic D, Baslom MMM, Tsoy D (2021) The Threat of COVID-19 and Job Insecurity Impact on Depression and Anxiety: An Empirical Study in the USA. Frontiers in psychology 12: 648572.

19. Yang GZ, Nelson B, Murphy RR, Choset H, Christensen H, et al. (2020) Combating COVID-19—The Role of Robotics in Managing Public Health and Infectious Diseases. Science Robotics 5(40): eabb5589.

20. Muller SM (2021) The Dangers of Performative Scientism as the Alternative to Anti-Scientific Policymaking: A Critical, Preliminary assessment of South Africa's Covid-19 response and its consequences. World Development 140: 105290.

21. Ejaz W, Ittefaq M, Seo H, Naz F (2021) Factors associated with the belief in COVID-19 related conspiracy theories in Pakistan. Health, Risk & Society 23(3-4): 162-178.

22. Rothmund T, Farkhari F, Azevedo F, Ziemer CT (2020) Scientific trust, risk assessment, and conspiracy beliefs about COVID-19-four patterns of consensus and disagreement between scientific experts and the German public.

23. Zelic Z, Beric M, Grum DK (2022) Examining the role of Covid-19 conspiracy beliefs in predicting vaccination intentions, preventive behavior and willingness to share opinions about the coronavirus. Studia Psychologica 64(1): 136-153.

24. Jung S, Kim SH (2020) Managing the Public Health Risks in the Time of COVID-19 (No. 2020rwp-181).

25. Pena-Diaz C (2022) Managing Communication in Public Health: Risk Perception in Crisis Settings. Social Determinant of Health: Translating and Interpreting the Covid-19 Pandemic. pp: 267-292.

26. Alqahtani MM, Arnout BA, Fadhel FH, Sufyan NSS (2021) Risk perceptions of COVID-19 and its impact on precautionary behavior: A qualitative study. Patient education and counselling 104(8): 1860-1867.

27. Goldberg JF (2021) How should psychiatry respond to COVID-19 anti-vax attitudes? The Journal of Clinical Psychiatry 82(5): 36325.

28. Kachanoff FJ, Bigman YE, Kapsaskis K, Gray K (2021) Measuring realistic and symbolic threats of COVID-19 and their unique impacts on well-being and adherence to public health behaviors. Social Psychological and Personality Science 12(5): 603-616.