

Occupational biosafety in the COVID-19 era

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1. Abstract.

Security have concern authorities and civil society during last years. Different society's substrates have different perceptions on security. Present document explores reliability and validity of an instrument which measures security perception in bachelor's students by reviewing seven dimensions: territorial, national, public (government), human, public (self-protection), private and internaut. Accordingly, setting values and residual permitted to accept the null hypothesis significant relationship between the theoretical dimensions with respect to the weighted factors.

2. Keywords:

Instrument's reliability, Instruments validity, Security perception.

3. Introduction

At the time of writing, the pandemic caused by the SARS-COV-2 coronavirus and the COVID-19 disease has infected 10 million, sickened 5 million and killed 500,000 people worldwide (WHO, 2022). In Mexico, it has infected 200,000, sickened 150,000 and killed 25,000 people (PAHO, 2022). In this scenario, the perception of security is a central issue on the citizen's agenda not only due to the health crisis, but also the economic crisis. In this way, the escalation of violence against vulnerable groups such as children, women and the elderly has increased exponentially and added to the risks posed by the pandemic. Derived from this situation, the perception of security emerges, develops and consolidates as a central issue on the citizen's agenda (Martinez et al., 2018). It is a phenomenon in which potential victims appreciate the pandemic as unpredictable in its effects, immeasurable in its consequences and uncontrollable by the authorities. Such phenomena, the pandemic and security, converge in the violence against the vulnerable groups as a result of the frustration of the

heads of families in the face of unemployment, famine and unhealthiness (Juarez et al., 2017). In this way, the areas at greatest risk are the most densely populated such as Mexico City, mainly in the Iztapalapa mayor's office.

Precisely, the objective of the present work is to specify a model for the study of the perceived security in the face of the pandemic, confinement and violence towards vulnerable groups such as the elderly, women and children with respect to the head of the family, civil and health authorities. What are the networks of meanings around biosafety in migrant workers from central Mexico in the face of the pandemic? The contributions of the study to the discipline are 1) systematic review of the state of the art, 2) systematization of findings, 3) proposal of a theoretical and conceptual model, 4) methodological approach, 5) diagnosis of the problem, 6) discussion between the findings and literature reviewed, 7) design of pedagogical sequences. Thus, the first section reviews the theoretical and conceptual approaches that explain the phenomenon (Mejia et al., 2016). The second section presents the results of studies related to the subject (Mendoza et al., 2017). In the third section the axes, trajectories and relationships between the variables are proposed. In the fourth section, the decisions to approach the problem are presented (Quintero et al., 2017). In the fifth section, the results are described (Sandoval, 2020). In the sixth section, these findings are discussed (Garcia, 2018). The seventh section reflects on the contribution and application of study in the classroom.

3.1. Theory of Safety

Security, in several countries, have been suffered a lack, or absence, particularly when it is talked about governmental participation. Public security can be understood it as the state labor to protect and safe its population from internal dangers or threats. In Latin-American countries, public safe keeping is perceived as absent, due to big amount of press coverages which exposes mentioned lack (Rincon et al., 2018). In case of Mexico, day by day, they appear in the news, a bigger quantity of red notes' coverages, which shows a violent face of the country. The structure of perception of security in: Territorial security; National security; Public safety (State as general attorney); Human security; Public safety (Self-protection); Private security; and, internaut perception of safety, scopes (Bustos et al., 2018). Public safety events occur throughout the world, posing a threat to personal safety, property and national defense. Mexico's security problems are like the general context in Latin America in many ways. However, Mexico has an influence of organized crime due to the levels of consumption of illegal products in the US market. UU (Carreon et al., 2018). Public security has traditionally been understood as the function of the State that consists in protecting its citizens from illegal attacks on (or crimes against) their property, physical integrity, sexual freedom, etc. The meaning of public safety is inferred as security of persons: inherence, inseparability, breadth and focus on justice (Aldana et al., 2018). It is stated that our reality's perception is subjective and that our

world's perception depends of our life conditions. Perception of reality operates from a superior order, from a mesosystem that would include both (perception and reality), and in which each appear like elements and not like closed and independent units. The notion that: what we see, might not be what is truly there, has troubled and tantalized, all the population in every sector, class, or roll of our society. Different population's sector would have different perception of security (Carreon et al., 2018).

It can also be mentioned that cultural stigma in the country, also affects and promotes a lack of public safe keeping, due to the general manner of Mexican population's thinking, which in comparison with other cultures, appear to be like sluggish and with a short interest to develop in academic, professional, social, among other aspects. The administration of public security is the implementation of public policies that justify the guidance of the State in the prevention of crime and the administration of justice, but only the citizens' distrust of government action is evidenced by a growing perception of insecurity reported in the literature in seven dimensions: territorial, national, public (government), human, public (self-protection), private and internet (Martínez et al., 2018). Mexico can be seen from diverse scopes like economic, historic, or social. In that sense, there exist other sub-scopes (or sub-scales in the social scope) like health, public security, education, environmental consciousness, among others. As mentioned before, different population's sectors have different perception of social sub-scopes (or sub-scales). In case of bachelor's students, as its scholar formation gives the chance to generate critic manner of thinking, that population's sector can generate a solid perception of factor that affects society's context (García et al., 2017).

3.2. Studies of Safety

The security perception theory alludes to dimensions that are convergent with respect to the trust between rulers and ruled. In this way, the central premise of the theory is that citizens have unfavorable or positive expectations of their authorities in charge of law enforcement and crime prevention, as well as social rehabilitation (Carreon, 2020). In this sense, security is a socio-political phenomenon, but reduced to media expectations of government action, as well as mistrust or empathy for its strategies, programs or policies in terms of safeguarding the integrity and dignity of its governed, as well as private property and public interests. The dimensions of this perception of security have been structured in socio-spatial terms such as the territory or in social issues such as the nation, but with emphasis on the situation of sectors, strata or groups such as the so-called public and citizen security, as well as the interests individuals such as private and Internet security (García, 2019). Territorial and national security have traditionally been the most widely addressed from risk sociology to account for the impact of climate change on sea level and coasts, as well as risk events derived from droughts, frosts, fires, floods or earthquakes in vulnerable areas, the trafficking of species or the appearance of epidemics due to the invasion of animal territories (Quiroz, 2019). The so-called biosecurity focuses on food as the main indicator of health level in the face of a health or environmental crisis (Hernandez, 2019). In this sense, territorial or national security should have specialized

in public because each sector or social stratum demanded different needs according to contingent situations. The citizenization of this security gave way to the individualization of expectations and resources, leading to both personal and virtual self-protection, with the emergence of cybersecurity. There are more differences between biosecurity and cybersecurity, but both are essential for the rule of law, the administration of justice, the procurement of crime, social rehabilitation and collective pacification (Bustos et al., 2020). From a traditional perspective, both dimensions are observable as complementary, but from a progressive approach they are assumed as concomitants. In other words, the effects of climate change are increasingly linked to identity theft, extortion or cooptation, since niches of environmental and social deterioration that originate cybercrime are assumed. Or, based on cybersecurity, the data of robberies, kidnappings or homicides in situations of natural disaster or health contingencies are observed in real time.

3.3. Modeling of Safety

From the theoretical, conceptual and empirical review, the relationships between the variables were modeled (García, 2021). In this way, territorial and national security are concomitant given their level of generality in the protection of the country, as well as the multilateralism involved in international or regional pacification measures. In the cases of public and citizen security, both share the imperatives of safeguarding common goods that, although they are public, can be established as socially and environmentally available to future generations. In this sense, private and digital security are also similar in terms of preventing crimes that threaten the dignity and integrity of the individual rather than of society. The theoretical relationships between security perceptions are consistent with the observed data (García et al., 2016). This is so because it is presumed that the instrument measures the seven dimensions of security, as well as its consistency when applied to bulls, scenarios and samples. Furthermore, safety as a multidimensional phenomenon suggests measurement levels concomitant (HC) with each other, reflective (HR) and with errors (HE) attributed to variance of the responses. The concomitant hypotheses allude to the covariances between the dimensions of the phenomenon, as well as to the explanation of its trajectory structure if a new specification or modeling arose by testing the null hypothesis (García, 2020). The reflecting hypotheses allude to the relationships between the factors with respect to the indicators, suggesting the structuring of the phenomenon, as well as the convergence of the responses to the reactive that measure each feature of the dimensions (Rivera, 2020). The hypotheses of measurement errors refer to unexplained variances in estimating the structure of concomitant and reflective relationships. Furthermore, it suggests the probable incidence of other factors and indicators not included in the model (Amemiya, 2020).

4. Method

A documentary, cross-sectional and exploratory study was carried out with a non-probabilistic selection of sources indexed to national repositories: Clase, Conacyt, Latindex and Redalyc, considering the period from 2019

to 2022, as well as the search by keywords; “safety”, “biosafety” and “COVID” (see Table 1).

Table 1: Sample descriptive

	2019	2020	2021	2022
Clase	3	1	5	3
Conacyt	4	3	4	4
Latindex	5	2	6	1
Redalyc	6	4	3	2

Source: Elaborated with data study

The Delphi inventory was used, which includes questions related to the relevance of the findings reported in the literature regarding job security. Expert judges on the subject were selected from their h-index of citations in academic google. The criteria of the judges allowed to evaluate the findings sought in the literature (see Table 2).

Table 2: Descriptive of the judges

Sex	Age	Grade	Profession	Income
Female	52	Doctor	Psychology	37'984.00
Male	40	Master	Psychology	41'987.00
Male	58	Doctor	Sociology	33'865.00
Male	62	Master	Psychology	30'892.00
Female	39	Master	Sociology	27'963.00
Male	46	Master	Economy	31'949.00
Male	41	Doctor	Economy	26'962.00

Source: Elaborated with data study

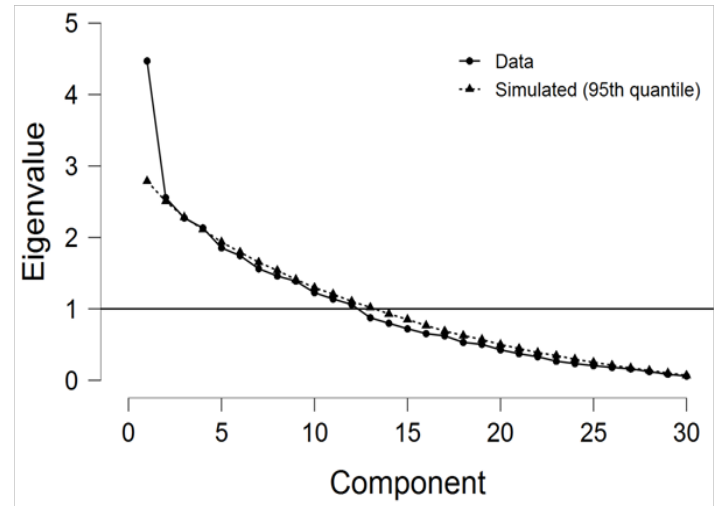
The judges were contacted through their institutional mail. Respondents were informed about the project and those responsible. The confidentiality and anonymity of their answers were guaranteed in writing. The protocols for studies with humans recommended by the ethics committee were followed. The Helsinki protocol was used to carry out the investigation. The study followed the guidelines of the American Psychological Association. The judges coded their responses using a Likert scale ranging from 0 = “not at all in agreement” to 5 = “quite in agreement”. The data was captured in excel and processed in JASP version 15. Non-parametric statistical coefficients were used. Centrality and grouping were estimated, as well as the network of relationships, considering a learning of the biosafety protocols reported in the literature.

5. Results

The slope of the simulated and observed data suggests a fit. It then means that the dimensions of biosecurity in the face of COVID-19 emerge from the context of study. In this sense, the network of meanings is oriented

towards dimensions related to anger, fear, anxiety, frustration, exhaustion, depersonalization, stress, distance, confinement, opportunism and stigma (see Figure 1).

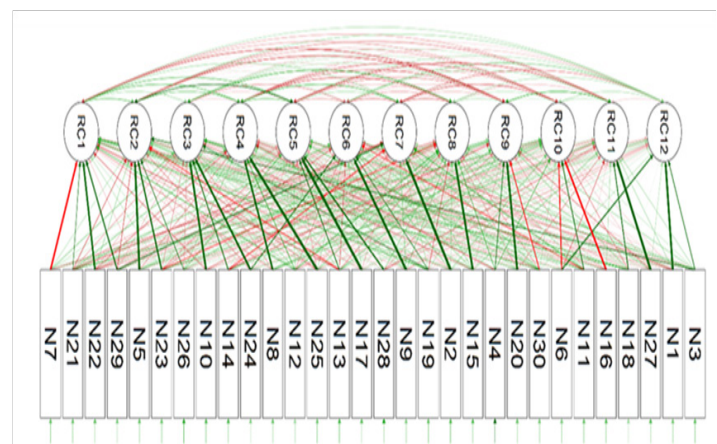
Figure 1: Scree plot



Source: Elaborated with data study

Figure 2 shows the relationships between the indicators and the twelve established factors. The pandemic directly impacted emotions. The model includes negative relations between the factors but positive relations between the factors with respect to the indicated ones. The results show an emotional diversification as a result of the containment and mitigation policies of the pandemic in the literature published from 2019 to 2022, considering the criteria of the expert judges on the topics. The resulting structure suggests that the twelve components of the security model suggest a diversity of meanings.

Figure 2: Path diagram



Source: Elaborated with data study

6. Discussion

In relation to the theory of the perception of security, which raises nine dimensions related to territory, nation, citizenship, public, private, human and internet, this work demonstrated that human security is the factor that most reflects the perceptual security structure (Carreon et al., 2014). Lines of study referring to the dimensions of human security will allow us to notice conflict scenarios between rulers and ruled, as well as the emergence of citizen and private security. Regarding security studies where a continuous coercive and persuasive state in its relationship with citizens stands out, this work has shown that human security is a dimension that explains the differences and similarities between rulers and ruled (Garcia, 2019). The development of this dimension will allow us to notice the transition from a coercive system to another persuasive one. That is, the security attributed to the legitimate violence of a democratic government will be observed up to the security that demarcates the regime from all responsibility and recharges the citizen with the attribution of prevention by confining their expression and their property. Regarding the modeling of the seven dimensions of security perception, the present study has shown that these explain 55% of the variance and warn of the emergence of a common factor that the literature identifies as second order (Garcia et al., 2016). Research lines concerning the emergence of this common factor will allow evaluating, accrediting, and certifying the relations between rulers and governors in matters of multidimensional security. In summary, perceived security is a multidimensional psychological phenomenon since it derives from the relations between authorities and citizens with respect to crime prevention, the administration of justice and social rehabilitation, although other dimensions such as sectoral or media security to explain the impact of policies, strategies and programs on civil decisions and actions.

7. Conclusion

In Mexico, a common interpretation or idea of which country is lacking in security prevails. The absence of custody is influenced by the presence of organized crime, the illegal sale of drugs and weapons, and the corruption available in each branch of the government, among the main aspects. The correlations of reliability and validity when the unit far show that there are other dimensions linked to construct. In this sense, the inclusion of self-control explains the effects of state propaganda regarding crime prevention, law enforcement and peace education on lifestyles of civilian sectors. The contribution of this study is concerned about the reliability and validity of an instrument which measured seven dimensions of security: territorial, national, human, public, public, private and digital. The studies on public safety identify in the government's expectations the predominant factor that explains the phenomenon as an efficient, effective and effective institution, but in the present work the emergence of this phenomenon has been demonstrated from a structure of perceptions around the personal, citizen, public, human, national and territorial agenda.

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