

Perceived coronavirus health risk associated with students' life satisfaction: the role of trust in government policies

Risco de saúde percebido do coronavírus associado à satisfação de vida dos estudantes: o papel da confiança nas políticas governamentais

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Abstract *This study investigates whether trust in government policies has a mediation effect between the students' perception of COVID-19 health risk and their life satisfaction. In order to test the mediation effect, this study utilizes data collected from undergraduate students at Tecnológico de Monterrey in Mexico by means of on-line survey. The survey yielded 95 usable data out of 97. The valid results were tested via generalized linear model (GLM) Mediation approach for the mediation. Empirical findings of Delta method affirm the mediation (estimate = 0.4445, $\beta = 0.474$, $z = 3.699$, $p < .001$) role of trust in government as a mediator between students' perception of COVID-19 health risk and their life satisfaction. In other words, Mexican undergraduate students are of the view that trusting government plays a crucial role as a mediator between their perception of coronavirus health risk and life satisfaction. These findings may guide the governments' policy making efforts and motivate them to support their initiatives with trust-building efforts.*

Key words COVID-19, Educational innovation, Health risk, Higher education, Life satisfaction, Trust in government policies

Resumo *Este estudo investiga se a confiança nas políticas governamentais tem um efeito de mediação na percepção dos estudantes sobre o risco de saúde da COVID-19 e a satisfação de vida. A fim de testar o efeito de mediação, o estudo utiliza dados recolhidos de estudantes universitários do Tecnológico de Monterrey, no México. O inquérito produziu 95 dados utilizáveis de um total de 97. Os resultados válidos foram testados por meio da abordagem de mediação do modelo linear generalizado (GLM). Os resultados empíricos do método Delta afirmam (estimativa = 0,4445, $\beta = 0,474$, $z = 3,699$, $p < .001$) o papel de confiança no governo como mediador entre a percepção dos estudantes sobre o risco de saúde da COVID-19 e sua satisfação de vida. Em outras palavras, para os estudantes de graduação mexicanos a confiança no governo desempenha papel crucial como mediador entre suas percepções sobre o risco de saúde do coronavírus e a satisfação de vida. As conclusões do estudo podem orientar os esforços dos governos na elaboração de políticas e motivá-los a apoiar iniciativas de criação de confiança.*

Palavras-chave COVID-19, Inovação educacional, Risco de saúde, Ensino superior, Satisfação de vida, Confiança nas políticas governamentais

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Introduction

Since the first coronavirus cases started, governments have been trying to mitigate the effects of the outbreak. While some regimes follow strict restrictions and implement isolation measures, others prefer to use alternative methods like smart lockdowns and socio-economic programs following the medical advisory boards' recommendations and international organizations such as World Health Organization^{1,2}. Despite these efforts, the success of preventative measures highly depends on how societies perceive fairness of policy making, trust in institutions, perceived health risk, and consequences of these initiatives in their life satisfaction. If citizens of a country trust the reasoning behind policy implementations, they postulate them as improvement in their health safety and overall life satisfaction³.

On the contrary, if stringent policy making couples with public distrust in a government, the citizens of countries may consider government interventions as hostile⁴. This leads to a negative impact on perception of life satisfaction and increase the magnitude of the public distrust in government even further⁵. For instance, studies conducted after H1N1 pandemic at Switzerland illustrate that initially Swiss population displayed high trust on the government legislations; however, the trust level sharply declined over the time due to the discrepancies between promised effects by government and end result of the implemented policies^{6,7}. A systematic literature review conducted on H1N1 reports that *In most countries, perceived vulnerability increased, but perceived severity, anxiety, self-efficacy, and vaccination intention decreased*⁸. This highlights that there is a strong link between trust in government policies and life satisfaction.

Another critical aspect of crisis management is the magnitude of perceived health risk. How people assert their risk perception can affect their trust in and content with institutions and governments⁹. The behavioral response to the crisis is linked to the perception of risk related to the adverse impact of that specific crisis. In times of major disasters and health crisis, people tend to accept higher degree of restrictive policy implementations while, if the risk perception is low, the vice-a-versa is valid^{10,11}. Thus, it is essential to investigate the trust in government dealings and the perceived risk among citizens during a health crisis.

With the emergence of COVID-19, there is a growing body of literature that addresses the

mentioned relationship. Although initial studies report that there is a correlation between trust in government departments and agencies and government policies^{12,13}, majority of these studies are focused on advanced country settings and investigate the topic through the general public lenses. So far, there is limited numbers of studies that concerning of a particular group of population and how aforementioned dynamics work within that group. For instance, Lambovska et al.¹⁴ mention in their recent study that the rate of unemployment among European Union (EU) member countries' young population (25 years of age or younger) have gone up due to adverse effects of COVID-19. Similarly, Palmer and Small¹⁵ indicate that COVID-19 has further burdened youth (age 18 to 29) in terms of their economic responsibilities and healthcare related expenditures. Both studies further highlight the importance of government policy implementations for protection of the young population, since they are accounting for nearly one fourth of the total world's population.

Motivated to contribute to the mentioned literature gaps, this study aims to investigate university student's perception on how government policies affect their life satisfaction associated with perceived coronavirus health risk in Mexico. The reason why students are chosen is due to lack of studies that targets them as a subset of young generations. Also, it is important to highlight that Mexico is the only emerging market country in the North America region. Therefore, students who are in Mexico provides a unique setting for this study.

Background and hypotheses development

Perceived coronavirus health risk and life satisfaction

Life satisfaction of an individual is determined by the perception of their environment and intuitive risk assessment within that environment^{16,17}. Based on their risk perceptions, individuals adjust their behavior in such a way that they can avoid potential adverse effects of risk factors and can increase their perceived life satisfaction¹⁸. While this dynamic is thought to be executed based on facts as well as rational deliberations¹⁹, social-cognition literature reveals that being exposed to misinformation (optimistic or pessimistic) that is closer to an individual's own belief or solely relying on one's own observa-

tion can sway the ability to assess the risk²⁰⁻²². A given group of people, as a result of the subjectivity, may perceive their life satisfaction higher or lower than other groups in the given society when facing the same adverse situation²³. Literature provides mixed results regarding this issue. In some cases, there may not even be a perceived risk at a given health crisis; therefore, no change in terms of life satisfaction can possibly be observed²⁴. Based on the above discussion, this study proposes the following hypothesis – H_1 : *Students' perceived coronavirus health risk affects their perception of life satisfaction.*

Perceived coronavirus health risk and trust in government policies

Recent published research in the Bulletin of the World Health Organization highlights that one of the main influencers of risk perception during COVID-19 crisis is the public relations and trust in government²⁵. This is due to citizens of countries' dependance on reliable information dissemination on the current events, health system's effectiveness, and the potential nationwide action plans²⁶. Failing to answer these needs and delaying taking action to curb the negativities born due to COVID-19 for the sake of political narratives increases the distrust in institutions, legislations, and overall government dealings^{17,27-29}.

On the other hand, there are research works indicating that government's ability to match with public's opinion on how severe the crisis is and to implement measures that could counterbalance the negativities of COVID-19 boost the public trust towards government policies^{30,31}. As a result, the perceived health risk decreases and citizens' attitude towards risk level at a given country drops and they go back to their pre-pandemic daily routines^{32,33}.

The emerging research, however, reveals a different path of interaction. It suggests that the higher risk perception of health could mean lower levels of trust in the government policies^{34,35}. Simply, the higher potential of the riskiness could be perceived by the citizens as ineffective policy making. The higher perceived risk, therefore, requires more impactful government policymaking to recover trust in government policies³⁶. Similarly, false claims by the unaccountable news outlets and word of mouth could create higher perception of risk and lower the level of trust in government³⁷. False information and distorted claims by plethora of news mediums could fuel

the overestimate of the seriousness of the pandemic while fostering conspiracy theories to reduce trust in government and policy-making process in a given country³⁸. Based on the above discussion, this study proposes the following hypothesis – H_2 : *Perceived coronavirus health risk affects students' trust in government policies.*

Trust in government policies and life satisfaction

Trust in government and its influence on the life satisfaction level has been long investigated in social sciences. Frey and Stutzer³⁹, in their seminal work, highlight that there is a strong evidence on the influence of government policies over life satisfaction. Their contemporaries also provide supporting evidence that government policies directly impact life dynamics at a given country and society^{40,41}. In alignment with the literature, Yu et al.⁴² find that government policies that are reducing factors of stress in citizens' livelihood and increasing convenience of their daily dealings would lead to higher life satisfaction compared to antecedent life satisfaction levels. In a similar fashion, Barrafreem et al.⁴³ highlight that trust in government policies causes reduction of future anxiety and improves life satisfaction among citizens.

Yet, the impact of the government policies and to what they are welcomed by the citizens in terms of their life satisfaction is significantly related to citizens' trust in government⁴⁴. The lower trust in the policy makers would cause negative perception that leads to lower level of life satisfaction⁴⁵. On the contrary, however, high trust in policymakers does not always translate into ex-ante policymaking life satisfaction perception of citizens³⁶. Due to the dynamic relationship between trust in government policies and life satisfaction, each group and society should be treated as a unique set of observation and investigated separately^{27,46,47}. Based on above discussion, this study proposes the following hypothesis – H_3 : *Trust in government policies affects life satisfaction of students.*

Mediating effects of trust in government policies between perception of health risk and life satisfaction

When large numbers of actors are involved in taking a government motivated action, the extent that individuals' sense making directly correlated with their own social welfare rather

than societies overall well-being⁴⁸. If individuals' cost-benefit calculation reveals the perceived risk is not high enough to follow the policies in the time of an adverse event and they do not trust the government, they simply prefer not to follow preventative guidelines and policies that the government implements⁴⁹. Their perception towards government interventions shifts from facilitating structure for daily life to hindrance of their livelihood^{50,51}. As a result, public's perception on trust in government policies and life satisfaction plummets.

On the contrary, in certain high-risk environments, government interventions may be considered as legitimate. For instance, if a government provides sound reasoning behind its interventions during the crisis, it will build trust among citizens towards implementing policies and reduce the perceived riskiness⁵²⁻⁵⁵. Otherwise, government interventions will be linked to corruption and reduce trust in government during crisis^{56,57}. However, there is a limited number of research works that investigate the dynamic mentioned above in COVID-19 settings. It is not clear whether trust in government policies mediate how citizens perceive government actions and link it to their life satisfaction. Hence, based on the provided literature, this paper proposes the following hypothesis – H_4 : *Trust in government mediates the relationship between perceived coronavirus health risk perception and life satisfaction among students.*

The Figure 1 illustrates the model that is created to investigate and plot the relationship among the "Perceived Coronavirus Health Risk" (PCHR), "Trust in Government Policies" (TGP), and life satisfaction (LS). It accounts for two possible relation investigations among the mentioned variables: direct relation/correlations and mediation-based interactions. The rigor of the model stems from its way of mapping each possible interaction through the lenses of the proposed mediation technique. The next section explains the adopted methodology in detail, followed by the "Analysis and Results" section in which the analysis results are explained thoroughly.

Methodology

Participants and procedure

This research has been conducted using empirical evidence which was collected through online responses of undergraduate students of

Tecnológico de Monterrey, Mexico. In order to collect data for this research, we sought help from university Professors for distributing Google form-based online survey links among their students. Professors used a learning management system (LMS) platform, Canvas, to distribute this online survey link. Canvas is currently being utilized as an official LMS platform for both university professors and students. For this research, the data was collected using the convenience sampling technique. The data collection duration was based on the following five weeks, starting from April to the first week of May 2021. Due to the anonymity of the survey, with in alignment with the previous studies, the study is exempt from ethical board approval⁵⁸.

Within the scope of this study, we received a total of 97 responses via Google Form-based online survey. During data curation, it was found that two responses were incomplete, which were deleted prior to the final analysis of collected data. Therefore, we could only take into account 95 responses as the final analysis of collected data.

Measures

Independent variable: perceived coronavirus health risk

To measure *perceived coronavirus health risk* (PCHR), we adopted three items from scale developed by Han et al.⁵⁹ The sample questions involved *To minimize my chances of getting coronavirus, I wash my hands more often.* In order to test the reliability of the scale, Cronbach alpha value was utilized. According to the previous literature, the value of Cronbach alpha values that are exceeding the 0.7 value accepted as reliable scale for the measuring variables^{60,61}. Cronbach alpha, for the independent variable (PCHR) found as 0.94. The test shows that PCHR variable that is employed for this study is reliability.

Mediating variable: trust in government policies

To measure *trust in government policies* (TGP), three items had been adopted from the developed scale of Han et al.⁵⁹ The sample questions entailed *In general, how much do you trust government of your country to take the right measures to deal with the coronavirus pandemic?* The reliability and the scale of the variable is validated based on Cronbach alpha test. The value of Cronbach alpha for the variable is determined as 0.91. It shows that the scale to be reliable for the present study^{60,62,63}.

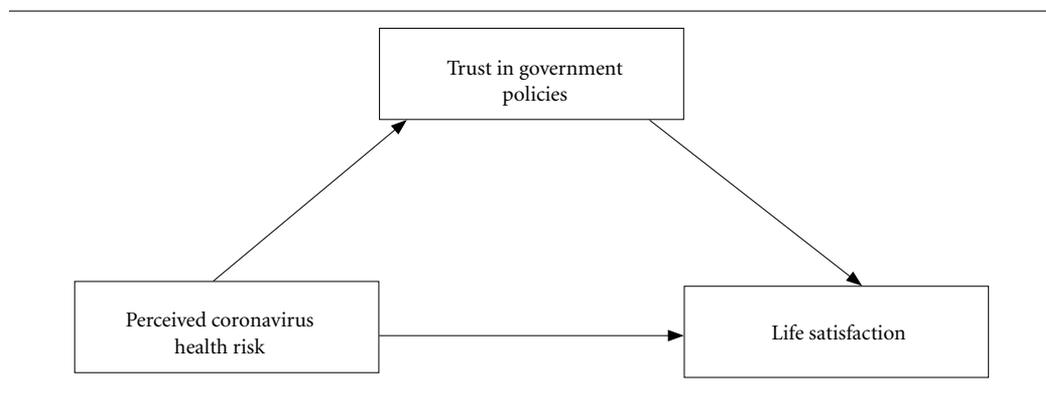


Figure 1. Research model.

Source: Authors.

Dependent variable: life satisfaction

To measure *life satisfaction* (LS), we adopted four items from developed scales of Phulkerd et al.⁶⁴ The sample questions included *In most ways, my life is close to my ideal* and the reliability determined as 0.80. This finding agrees with the Xiong et al.⁶²

Statistical analysis

In order to statistically analyze collected data, we used Jamovi version 1.6.23.0 (Mac OS), an open-access software. During the first step of data analysis, we applied a descriptive technique for gaining initial information of participants like the total number of respondents and percentage with regards to their gender, age, major, enrollment status, and scholarship. In the second step, we applied correlation analysis for checking the existence of a correlation between a set of variables. Lastly, we applied the Generalized Linear Model (GLM) mediation approach, to identify the mediation (indirect and direct) effects of *Trust on government policies* on the independent variable *Perceived coronavirus health risk* and dependent variable i.e., *Life satisfaction*, and also total effects between both dependent and independent variable.

Analysis and results

Descriptive analysis

The demographic information of respondents is based on counts and percentages with

different levels such as age, gender, specialization, and scholarship. Age-wise distribution of respondents was 26 students (27.4%) between 18 to 20 years, 62 respondents (65.3%) between 21 to 22 years, and remaining 7 respondents were above 23 years (7.4%). Most responses were received from male students i.e., 64 (67.4%), and the remaining 31 were female respondents (32.6%). Specialization-wise 58 (61.1%) respondents were from Management and Social Sciences, 31 (32.6%) respondents from Engineering, and remaining 6 from Natural Sciences (6.3%). 55 (57.9%) respondents were studying without a scholarship, and the remaining 40 (42.1%) respondents held scholarships (Table 1).

Correlation analysis

For correlation analysis, we applied Pearson's *r* test to explore the correlation existing among independent (PCHR), mediation (TGP), and dependent (LS) variables. It is demonstrated by analyzed results in Table 1 that a significant correlation exists between sets of variables. PCHR is significantly and positively correlated with LS ($r = .474, p < 0.001$). Analyzed results also confirm that a significantly positive correlation exists between PCHR and TGP ($r = .877, p < 0.001$), and TGP and LS ($r = .569, p < 0.001$) (Table 2).

Hypotheses testing

GLM Mediation analysis technique was used to test the hypotheses based on relationships represented in the research model. The technique was used by employing the "medmod" module

of Jamovi software. Table 3 illustrates the findings of our results. It is indicated by the analyzed result that our first hypothesis H_1 : *Students' perceived coronavirus health risk affects their perception of life satisfaction* is supported ($\beta = 0.474$,

$p < 0.001$). H_2 : *Perceived coronavirus health risk affects students' trust in government policies* ($\beta = 0.887$, $p < 0.001$) and H_3 : *Trust in government policies affects life satisfaction of students* ($\beta = 0.662$, $p < 0.001$) are supported respectively.

It is also revealed by Table 3 that trust in government policies mediates the relationship between PCHR and LS because no zero value exists between Lower and Upper Confidence Intervals, also the Delta method affirms mediation (estimate = 0.4445, $\beta = 0.474$, $z = 3.699$, $p < .001$). Hence, hypothesis H_4 has been supported as well i.e., *Trust in government mediates the relationship between coronavirus health risk perception and life satisfaction among students*. After the mediator's introduction, the relationship between the dependent and independent variable has been modified from significant to insignificant such as significant total effects were modified insignificant direct effects. It has been affirmed through our analyzed results that the research model has full mediation.

Table 1. Demographic information.

| | n | % |
|--------------------------------|----|-------|
| Age | | |
| 18 to 20 years | 26 | 27.4% |
| 21 to 22 years | 62 | 65.3% |
| Above 23 years | 7 | 7.4% |
| Gender | | |
| Male | 64 | 67.4% |
| Female | 31 | 32.6% |
| Specialization | | |
| Natural sciences | 6 | 6.3% |
| Engineering | 31 | 32.6% |
| Management and social sciences | 58 | 61.1% |
| Scholarship | | |
| Yes | 40 | 42.1% |
| No | 55 | 57.9% |

Note: "n" stands for sample population number; "%" refers to percentage.

Source: Authors.

Table 2. Correlation analysis.

| | | PCHR | TGP | LS |
|------|-------------|----------|----------|----------|
| PCHR | Pearson's r | — (0.94) | | |
| TGP | Pearson's r | 0.877* | — (0.91) | |
| LS | Pearson's r | 0.474* | 0.569* | — (0.80) |

* $p < .001$; PCHR = perceived coronavirus health risk; TGP: trust in government policies; LS = life satisfaction.

Note: Cronbach alpha values are presented in parenthesis.

Source: Authors.

Discussion

According to the previous literature, mixed results of government efforts in mitigating the negative effects of public health crises might be due to the varying levels of societies' trust in governments^{3,4}. While high public trust in government significantly increases the compliance with restrictions and preventative measures⁶⁵, distrust in government limits the outcomes of the of government responses to COVID-19⁶⁶.

This study demonstrates a correlation between perceived coronavirus health risk and life satisfaction, perceived coronavirus health risk and trust in government policies, as well as trust in government policies and life satisfaction. This analysis supports the argument that trust in gov-

Table 3. Indirect and total effects (mediation).

| Type | Effects | Estimate | SE | 95%CI | | β | z | p |
|--------------------|-----------------|----------|--------|--------|-------|---------|--------|-------|
| | | | | Lower | Upper | | | |
| Indirect Component | PCHR → TGP → LS | 0.4445 | 0.1202 | 0.209 | 0.680 | 0.580 | 3.699 | <.001 |
| | PCHR → TGP | 0.8703 | 0.0490 | 0.774 | 0.966 | 0.877 | 17.746 | <.001 |
| | TGP → LS | 0.5107 | 0.1351 | 0.246 | 0.775 | 0.662 | 3.782 | <.001 |
| Direct | PCHR → LS | -0.0809 | 0.1341 | -0.344 | 0.182 | -0.106 | -0.603 | 0.546 |
| Total | PCHR → LS | 0.3636 | 0.0696 | 0.227 | 0.500 | 0.474 | 5.223 | <.001 |

Note: confidence intervals (CI) computed with method: Standard (Delta method); Betas (β) are completely standardized effect sizes; PCHR = perceived coronavirus health risk; TGP = trust on government policies; LS = life satisfaction.

Source: Authors.

ernment policies has a mediation effect on the relation between people's perception of health risk and their life satisfaction. The data confirms that trust in government policies is a mediating variable, accounting for the relationship between the perception of COVID-19 health risk among the students who took the survey and their life satisfaction.

Furthermore, the perceived coronavirus health risk is correlated with trust in government's policies. In line with the hypothesis, the results show that the students' perceived health risk associated with the coronavirus affects their level of trust in government policies. Our results support the findings of the contemporary research such as Edelman⁶⁷ which shows a record rise in trust in government among the 11 studied countries during the COVID -19 pandemic. Our study agrees with the previous literature that the potential riskiness of a health crisis would influence the perception of citizens about effectiveness of government's policy making and implementation^{10,11,32,68}. The findings of this study also emphasize the importance of ethical media and transparency of information. As Kim and Kim³⁷, and Melki et al.³⁸ suggested, false claims and distorted information by unaccountable news mediums could alter the perception of risk and affect the trust in the government and their policy-making process.

However, according to our results, the extent that the government policies are welcomed by the citizens in terms of their life satisfaction is related to people's trust in government. This is in line with the statement of Hetherington and Huser³, and Barrafreem et al.⁴³ that if citizens trust the reasoning behind policy implementations by government, they consider them as improvement in their health safety and life satisfaction.

Finally, results further supplement the perspective on the relevance of trust in government policies as a mediator variable between perceived coronavirus health risk and life satisfaction. After the introduction of trust in government policies, the relationship between the perceived coronavirus health risk and life satisfaction was modified from significant to insignificant. Therefore, trust in government policies fully mediates the effect of perceived health risk on life satisfaction.

Conclusion

Recently, perceived coronavirus health risk presented a unique challenge for all governments. In order to tackle this challenging situation, the governments must design and execute new innovative public policies for citizens to trust their government policies as well as build life satisfaction. Due to the dynamic relationship shared by the trust in government policies and life satisfaction, every group and society must be investigated separately and treated as a unique set of observations^{25,44,45}. It has been affirmed through this study's findings that Mexican undergraduate students are of the view that trusting government plays a crucial role as a mediator between their perception of coronavirus health risk and life satisfaction. The relevant findings of the study might provide guidance to governments' policy-making efforts and encourage them to support their initiatives with trust-building efforts. In addition, practitioners and academics alike may further explore what communication strategies would transmit information in a reliable fashion and efficient way as a future research topic through comparative analysis and diverse country settings.

Collaborations

A Abbas: conceptualization, literature review, research and survey design, data collection, data curation, formal data analysis, validation, and writing. AY Ar: literature review, data collection, and writing. RG Fard: literature review, and writing. A Mannan: writing – review and comments. S Hosseini: writing – review, comments and editing.

Acknowledgments

The authors would like to acknowledge the financial support of Writing Lab, Institute for the Future of Education, Tecnológico de Monterrey, Mexico, in the production of this work. We are thankful to Talía González Cacho and Mildred López for helping us during data collection. We are also grateful to all students who became a part of our online survey.

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Article submitted 30/03/2021

Approved 20/07/2021

Final version submitted 25/05/2022

Chief editors: Maria Cecília de Souza Minayo, Romeu Gomes, Antônio Augusto Moura da Silva