Health Risk Perception of COVID-19 in Caribbean Countries

Narayana Prasad1*, Modesto Cruz2, Sukanya Prasad3, Hanifa M. Denny4

1 Cofounder, Public Health Literacy, USA and Technical Director, CICL, Brigham and Women Hospital, USA
2 Professor of Institute of Microbiology and Parasitology, IMPA, Faculty of Sciences, Autonomous University of Santo Domingo, UASD, Dominican Republic
3 Medical Officer, Miracle Medical Centre, St. Thomas, Jamaica, and Director, Public Health Literacy, Jamaica, WI
4 Associate Professor, Faculty of Public Health, Diponegoro University, Semarang, Indonesia

*Corresponding author:
Dr. Narayana Prasad
1450 NW 25 Ave Suite 1 Miami USA 33125
Phone numbers: 1-786-218-4622
E-mail address: nprasad@publichealthliteracy.org

Abstract

Background: The COVID-19 pandemic has affected most countries globally but at various levels of intensity and implications for human health. It is critical to understand the public perception of health risks. In addition to the disease threats to human biology, collective perception of the risk can also influence and alter the pandemic's trajectory based on each country's social and cultural makeup.

Aims: To evaluate perceived health concerns during the COVID-19 pandemic. Setting and Design: Cross-sectional observational survey research was conducted in two Caribbean countries, Jamaica and the Dominican Republic. Statistical analysis used: Statistical Package for the Social Sciences (SPSS) was used to analyze the data. Methods and Material: The cross-sectional randomized online questionnaire survey was sent to 268 participants in Jamaica and 380 participants in the Dominican Republic. Out of these, 92 people (34%) from Jamaica and 205 (54%) responded to the online questionnaire survey between May 2020 and August 2020, and Statistical Package for the Social Sciences (SPSS) analyzed the data. Results and Discussion: In Jamaica, out of 92 participants, 78% were females, and 22% were males. More than 70% of participants were over 35 yrs. Old. Overall, 52% of participants perceived that the country was not prepared for a crisis such as COVID-19. The biggest concerns during this crisis were family health (39%), economic hardship (28%),...
societal health (20%), and personal health (13%). In personal health, most Jamaicans were concerned about physical (48%), mental health (26%), and emotional health (14%) during this crisis. In the Dominican Republic, out of 205 participants, 80% were females, and 20% were males. 85% of participants were under 35 yrs. Old. 96% of participants perceived that the country was not prepared for a crisis such as COVID-19. Both family health (41%) and social health (40%) were the most significant concerns, and 7% were concerned about personal health, and 12% concerned about economic hardship. Most Dominicans were equally concerned with physical (35%), emotional (33%), and mental health (32%) during the crisis. **Conclusion:** The risk perception is an essential determinant of public willingness to cooperate and adopt health behavior modification. The diversity in culture and geography related to personal experience, education, ideology, trust, and values influence people’s knowledge and understanding of the risks. The population perceives health risk both in terms of real damage and perceived threat. The differences in the risk perception indicate the variation in social and cultural norms in each country. These results emphasize the need for further understanding of cross-cultural and cross-societal determinants variation in risk perception. Our findings are specific to two Caribbean countries. Based on our findings, policymakers and NGOs should consider risk perception markers and biological markers in designing interventions to mitigate the effects of a pandemic on society.

**Keywords:** Mental health, COVID-19, crisis, physical health, emotional health, risk perception.

**Key Message:**

The response to the on-going COVID-19 pandemic should consider the actual threat and the perceived risk to mitigate the population health burden in terms of healthcare delivery systems and public health services. There is a difference between cross-cultural and cross-societal determinants’ variation in risk perception of the pandemic.

**Introduction**

The COVID-19 pandemic has affected most countries globally at various levels of intensity and implications for human health. In addition to the disease’s threat to human biology that included...
individually physical and mental health, perception of the pandemic's risk can also influence and alter the pandemic's trajectory, depending on the country's social and cultural make up. Risk is a function of both perception risk plus real hazard. The perceived risk is shaped by psychological predictors that are shaped by personal knowledge and socio-cultural context. Many theories demonstrate that human behavior is related to perceived vulnerability. According to the protection-motivation theory, accurate public risk perceptions are critical to implementing successful public health protocols such as social distancing, hand washing, and wearing face masks. The concepts of risk are explained under the psychometric paradigm and subjective-expected approach. The psychometric paradigm mainly investigates all the factors that characterize risk in the public view and is classified as unknown risks. Unknown risks are described as new, non-observable, relatively less quantifiable, unknown to science with delayed effects.

Threat appraisal and risk perception are considered important determinants of public willingness to cooperate with public health initiatives and adopt protective behaviors during a national public crisis such as a pandemic. Risk perception potentially influences necessary public health measures taken at an individual level, such as hand washing, physical distancing, and wearing face masks. Risk perception is socially and culturally dependent based on people’s experiences, values, and trust in institutions. Compared to other risk domains, far less is known about the risk perception associated with emerging infectious diseases. Risk perception highlights the importance of understanding public perception of health risks to implement successful public health measures.

The Dominican Republic, in the Caribbean Ocean, inhabited by 10.8 million people. The country had a total of 111,900 COVID-19 cases as of late September 2020, including 2,101 deaths. Meanwhile, Jamaica is a country in the Caribbean regions, with a population of 2.9 million people. As of September 30, 2020, there are 6,408 cases of COVID-19 and a total of 101 deaths due to COVID-19.
Table 1: COVID-19 status in Jamaica and Dominican Republic (Sept 2020)

<table>
<thead>
<tr>
<th></th>
<th>Population</th>
<th>Total cases</th>
<th>Total deaths</th>
<th>Cases per 100,000</th>
<th>Cases in the last seven days</th>
<th>Deaths in the last seven days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominican Republic</td>
<td>10.8 million</td>
<td>111,900</td>
<td>2,101</td>
<td>1,053</td>
<td>2,083</td>
<td>44</td>
</tr>
<tr>
<td>Jamaica</td>
<td>2.9 million</td>
<td>6,408</td>
<td>101</td>
<td>218</td>
<td>1,027</td>
<td>23</td>
</tr>
</tbody>
</table>

The COVID-19 pandemic has affected most countries globally but at various levels of intensity and implications for human health. It is critical to understand the public perception of health risks. In addition to the disease threats to human biology, collective perception of the risk can also influence and alter the pandemic's trajectory based on each country's social and cultural makeup. Cross-sectional observational survey research was conducted in two Caribbean countries, Jamaica and the Dominican Republic, to evaluate perceived health concerns during the COVID-19 pandemic.

Methods and Material

We surveyed people in two countries, Jamaica and the Dominican Republic, between May 2020 and August 2020. The cross-sectional randomized online questionnaire survey was sent to 268 participants in Jamaica and 380 participants in the Dominican Republic. The response rate was 92 responses (34%) in Jamaica and 205 responses (54%) in the Dominican Republic. Data were analyzed using SPPS. Although these countries are considered Caribbean countries and have similarities in their geographic nature and similar economic distribution, both countries have cultural and linguistic diversity.

Jamaica is an English-speaking Caribbean country with predominantly British system influence. Whereas the Dominican Republic is a Spanish speaking country with predominantly Spain systems influence. These influences are related to their historical colonization of the land by England and Spain, respectively.

Social media such as WhatsApp, Facebook, and LinkedIn and Public Health Literacy webinar attendees were utilized to collect the data from mid-May 2020 to August 2020. The participants were considered as a representative sample of each country stratified by age and gender. The survey was
conducted in a web-based browser using Survey Monkey, and it took less than 3 minutes to complete. This study did not apply a financial incentive for the participants. The participants completed the survey in English in Jamaica and Spanish in the Dominican Republic. The questionnaires were designed objectively with no intrusive topics. Our dependent variables of risk perception covered affective, cognitive, and temporal-spatial dimensions to assess risk perception's holistic understanding. The real or any documented evidence of biological effects related to COVID-19 were not included in the questionnaire. The variables were simple measures of cognition, personal shreds of evidence, and social/cultural norms. (Table of questions).

### Table 2: Risk perception variables used

<table>
<thead>
<tr>
<th>Variables used</th>
<th>Item question used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic variation by age and gender</td>
<td>Samples stratified by age and gender</td>
</tr>
<tr>
<td>Personal knowledge</td>
<td>Do you believe COVID-19 prepared your country?</td>
</tr>
<tr>
<td>Social amplification</td>
<td>What is your biggest health concern about your health?</td>
</tr>
<tr>
<td></td>
<td>What is your biggest health concern about your loved ones?</td>
</tr>
<tr>
<td>Overall Perceived risk</td>
<td>What is the biggest concern during this crisis?</td>
</tr>
<tr>
<td>Trust in the institutions.</td>
<td>Who do you think should be leading the crisis?</td>
</tr>
</tbody>
</table>

### Results

The descriptive data of our results are listed in the charts below. Based on our findings' preliminary assessment, the gender difference was a significant finding such that more females participated in the survey compared to males in both countries at a 4 to 1 ratio (Chart 1). 85% of the Dominican Republic participants are under 34 years of age, suggesting younger population participation, whereas, in Jamaica, 75% of participants are over 35-yrs old, suggesting relatively older population participation (Chart 2).
In response to personal knowledge of the crisis – do you think your country was prepared for a crisis like COVID-19; 96% of Dominican people felt their country was not prepared, whereas 51% of Jamaican people felt their country was not prepared (Chart 3). In response to the first measure of social amplification – what is your biggest concern about your health during the crisis, Dominican people were nearly equally concerned about mental health (32%), physical health (36%), and emotional health (32%). Jamaican people were concerned about physical health (38%), mental health (30%), emotional health (16%), and social health (14%) (Charts 4 & 5). In response to the second measure of social amplification – what is your biggest concern about the health of your loved ones...
during the crisis; Dominican people were more concerned about the physical health (53%) of their loved ones, followed by emotional health (24%) and mental health (21%). Jamaican people were also more concerned about the physical health (48%) of their loved ones, followed by mental health (28%), emotional health (14%) (Charts 6 & 7). In response to overall perceived risk – what is your biggest concern during this time; Dominican people were worried about social health (41%), family health (40%), economic hardship (12%), and personal health (7%). Jamaican people were worried about family health (38%), economic hardship (27%), social health (20%), and personal health (13%) (Chart 8). In response to trust in the institutions – who do you think should be leading in a crisis like COVID-19, 35% of Dominican people responded scientific experts should be leading, less than 1% responded lawmakers should be leading, no one responded faith leaders although 63% responded all three of the institutions should be leading the crisis. 16% of Jamaican people responded scientific experts should be leading, 2% responded faith leaders should be leading, no one responded lawmakers, although 81% responded all three institutions should be leading the crisis (Chart 9).

Chart 3:

Do you believe your country was prepared for COVID-19?

<table>
<thead>
<tr>
<th></th>
<th>Dominican Republic</th>
<th>Jamaica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>96%</td>
<td>48.35%</td>
</tr>
<tr>
<td>No</td>
<td>4%</td>
<td>51.65%</td>
</tr>
</tbody>
</table>
Chart 4:

Dominican Republic
What is your biggest concern about your personal health during this crisis?

- Mental Health: 32%
- Physical Health: 36%
- Emotional Health: 32%

Chart 5:

Jamaica
What is your biggest concern about your personal health during this crisis?

- Physical Health: 38.89%
- Emotional Health: 16.67%
- Mental Health: 30.00%
- Social Health: 14.44%
Chart 6:

**Dominican Republic**

What is your biggest concern about the health of your loved ones?

- Mental Health: 21.57%
- Physical Health: 53.92%
- Emotional Health: 24.51%

Chart 7:

**Jamaica**

What is your biggest concern about the health of your loved ones?

- Physical Health: 48.35%
- Emotional Health: 14.29%
- Mental Health: 28.57%
- Social Health: 8.79%
The differences in the risk perception suggest variation in social and cultural norms in each country. Hence, the cultural and geographic diversity affects personal experience, education, ideology, trust, and values, influencing people’s knowledge and understanding of the risks. The population perceived health risk both in terms of real damage and perceived threat.

Although the results are informative and descriptive, further analysis is recommended. The efficacy of these findings will need to be analyzed using a correlational coefficient and regression analysis. Further supplementary regression analysis with additional indicators of importance, including one-way analysis of variance on the risk perception across the countries, is recommended to assess the significant difference in risk level. Pooled linear regression modeling across the two countries...
suggests a better understanding of risk perception and warrants linear and multiple regression models of each country's variables.

Conclusions

The risk perception is an essential determinant of public willingness to cooperate and adopt health behavior modification. The diversity in culture and geography related to personal experience, education, ideology, trust, and values influence people's knowledge and understanding of the risks. The population perceives health risk both in terms of real damage and perceived threat. The differences in the risk perception indicate the variation in social and cultural norms in each country. These results emphasize the need for further understanding of cross-cultural and cross-societal determinants variation in risk perception. Our findings are specific to two Caribbean countries. Based on our findings, policymakers and NGOs should consider risk perception markers in addition to biological markers in designing interventions to mitigate the effects of a pandemic on society. This descriptive data from the survey serves as a starting point to further investigate the role of risk perception in addition to real threat during a pandemic crisis. The current findings are observational. A larger sample is required to understand and generalize these findings to a given country. Insights from other Caribbean countries and countries around the world could be of relevance and use.

Source(s) of support: Not Applicable

Conflicting Interest: None

References


