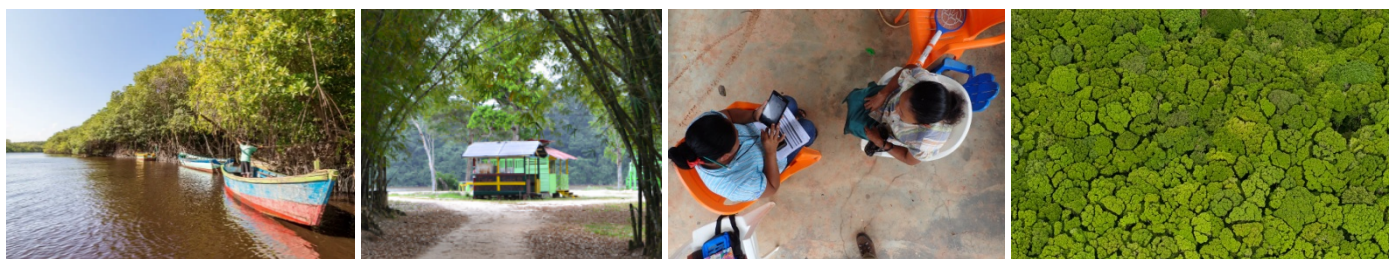


FINAL REPORT

A RAPID SURVEY OF KNOWLEDGE, ATTITUDES AND PRACTICES RELATED TO COVID-19 IN GUYANA



PREPARED BY VOLUNTEERS
IN SUPPORT OF GUYANA'S COVID-19 RESPONSE

The Consultancy Group Inc.
263 Earl's Avenue, Subryanville
Georgetown
Guyana
+592-225 8771, -225 8773

April 2020

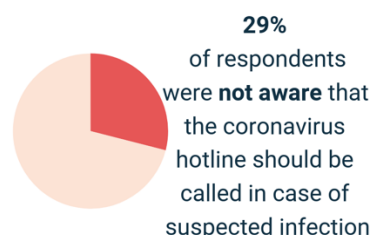
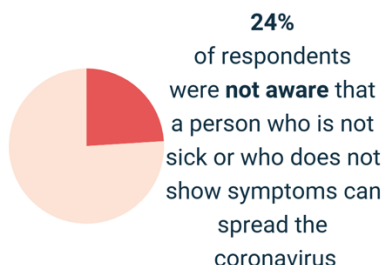
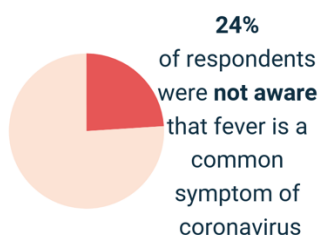
At a Glance

COVID-19 in GUYANA

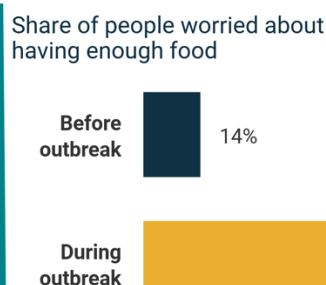
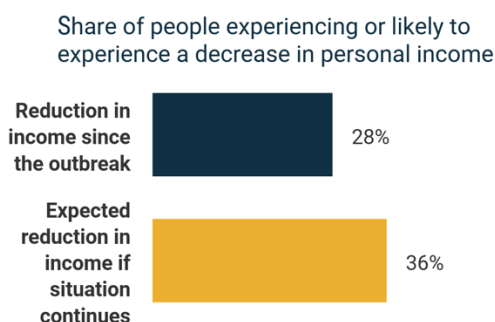
Knowledge, Attitudes and Practices



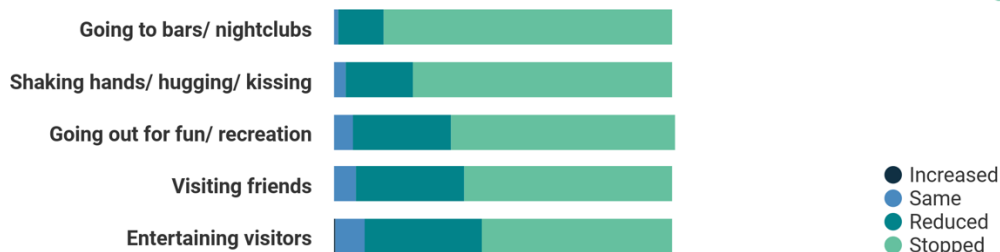
Large shares of people have good knowledge about COVID-19 but those who don't risk undoing the efforts of the many



Concerns are rising with regard to economic and food security



Most people are taking steps to help contain the spread of COVID-19



Note: data were collected through a telephone survey of adult Guyanese between March 28 and April 3, 2020.
For more information please visit: www.theconsultancygroupinc.com/covid.html

About TCG

The Consultancy Group Inc. is a Guyanese consulting firm, providing independent advice to organizations in Guyana, Latin America and the Caribbean since 2009.

We pride ourselves in leveraging a growing network of Guyanese talent to deliver insights from complex situations, particularly when multi-disciplinary teams bring depth and meaning. Where Guyanese expertise is unavailable, we draw on a roster of supporting international experts.

Over the last five years, we have been growing our capacity to collect and analyse data on a comparatively large scale, moving from paper-based interviews to Computer-Assisted Personal Interviewing (CAPI) in 2016. Investments in hardware and collaborations with some of Guyana's smartest minds, now allow us to collect data quickly, accurately, and at progressively lower costs.

We have seen the benefits recent and relevant data has delivered for our clients; creating a coherent tapestry in which to ground critical decisions, be it in relation to markets, ecosystems, public policy, or public health.

About this Survey

This survey likely represents the first assignment TCG has completed without a client.

Concern about unfolding Covid-19 pandemic led to many discussions about how we could best support Guyana's response to this unusual threat. This survey represents our attempt to make the concerns and perspectives of everyday Guyanese quickly accessible to decision-makers and responders, as they work to craft the best possible national response.

A team of dedicated volunteers completed all aspects of this survey. They lent an ear to Guyanese across the country in this unsettling time, while themselves struggling with the implications of Covid-19 on their own lives and wellbeing. Together so much is possible.

The data provides a rapid overview of an evolving situation, pointing to areas where more research could support better decisions.

Thank you Aisha Fraites, Heetasmin Singh, Meshach Pierre, Jean Marc Jardine, Omali Dare, Paul Glasgow, Hyomi Carty-Accra, Gillian Joseph, Hanan Lachmansingh, Leah Lachmansingh, Kessa Massiah, Nkasse Evans, Pilay Todd, Quincy Scotland, Raquel Thomas-Caesar, Renée Adams, René Edwards, Christina Edwards, Shomane Daniels, Stacy Cadogan, Vashti Baksh, Troy Thomas, Lenandlar Singh, Rory Fraser, Lawrence Lachmansingh, Cecilia Caio, Mena Carto, Salima Bacchus-Hinds, Marcelle Chan-A-Sue, Samantha James, Nicole Bowen, Cladia Van Sluytman, Timothy McIntosh and Sarina Kwall.

We acknowledge the loss of life, and the deep pain and distress the Covid-19 pandemic has caused many Guyanese, as it has people around the world. In the face of all the suffering and death, we have turned to what we know best, connecting people, sharing perspectives.

Executive Summary

Introduction

Guyana's first confirmed coronavirus disease (COVID-19) case was announced on March 11, 2020. This announcement was made after the patient had already died. Since then, attempts have been made by citizens and the state to respond to the coronavirus. This report contains the results of a voluntary undertaking by The Consultancy Group Inc and its partners to execute a survey of citizens in order to provide information that can assist in the fight against the spread of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in Guyana.

Method

The data were collected through a telephone survey of adult Guyanese between March 28 and April 3, 2020. The survey realised a sample of 411 at an overall response rate of 45.9% due largely to non-contact. However, when only the successful contacts are considered, the effective response rate is 77.4%. The survey itself covered the ten administrative regions and the sample size realised guarantees (and surpasses) that a mean can be estimated with 95% confidence while maintaining a margin of error of 5%. Sampling weights were applied to preserve proportional representation of the administrative regions.

To facilitate sampling, telephone numbers were put together from registration lists of workshops executed around the country by The Consultancy Group within the last decade. Use of these lists was supplemented with a snowballing approach wherein respondents could recommend others that could be contacted. The snowballing approach did not work well and contributed minimally to the sample. Nevertheless, the sample cannot be regarded as a random sample of Guyanese and it likely overrepresents people with higher socioeconomic status. That

notwithstanding, the data provide important insights into the circumstances and their responses to COVID-19.

The survey questionnaire was developed specifically for this survey and it covered topics such as knowledge about coronavirus infection, economic situation and food security, attitudes to COVID-19 and lifestyle.

The instrument was administered to respondents between March 28 and April 3, 2020 by a team of 24 volunteers who were trained over three days using remote multimedia interactions.

Analysis of the data involved several approaches inclusive of charts and tabular displays of summary data. The modelling approaches of confirmatory factor analysis, structural equations modelling, latent class analysis and logistic regression were also employed.

Results

Demographic Information

The average age of the respondents is 38.94 years and 59.57% of them are women. Overall, approximately 33% and 34% of them completed up to secondary and university education respectively. The percentage for university is large and consistent with the expectation of oversampling people of higher socioeconomic status. The respondents are from households with four (4) persons on average inclusive of an average of 1.07 children (below age 18) and 0.28 elderly (65 years and older). Just approximately 40% of the households are located in officially recognised townships.

Knowledge about COVID-19

Large majorities of the respondents are unaware of confirmed (~87%) or suspected (~84%) COVID-19 cases within their networks.

The level of knowledge about coronavirus symptoms is both reassuring and concerning. Approximately 82%, 76% and 12% of the respondents correctly identified the common COVID-19 symptoms of cough, fever and tiredness respectively. Though large percentages of people know some of the symptoms, there are still many that do not and this is cause for concern. In addition, 24% of the respondents believe that a person who is not sick or who does not show symptoms cannot spread the coronavirus, whereas 22% believe that a person can only begin to spread the virus after being infected for 14 days. That so few provided the incorrect answers to these items is reassuring but nevertheless concerning since there still appears to be people who are unaware and might therefore not be fully prepared to protect themselves and others. The concern is underscored when it is considered that in the context of preventing COVID-19 infection, one's best efforts can be undone by another person's carelessness and misconceptions.

When asked about what people should do if they suspect that they are infected with coronavirus, 71% of them said that they should call the coronavirus hotline and 52% said that they should self-quarantine or self-isolate at home. This means that nearly 30% of the respondents do not know about the hotline and just under half appear to now understand the importance of quarantining.

The most popular sources of COVID-19 information are Facebook (~69%) and local television (~61%). Following these two are WhatsApp group chat, government website and overseas television which were identified by between 40% and 44% of the respondents. There is a sense of ambivalence among the respondents

about their own abilities (or perhaps inclination) to interrogate the information received through the various sources to determine its authenticity.

Socioeconomic Impact of COVID-19

Since COVID-19 was detected in Guyana, unemployment among the respondents rose by 8.3 percentage points to 17.8%. In addition, income reduced or evaporated altogether for 39% of the respondents, and 20% and 36% of the respondents indicated that their personal income is likely to evaporate altogether or to become lower respectively in the future if the situation continues. With respect to the household, nearly 40% of the respondents indicated that income became lower and 6% said that they now have no household income at all. The respondents' projections for the future if the situation continues indicate that 68% of the households will experience either reduced or complete loss of income.

Between 89 and 98% of the individuals said that they had enough to eat, were able to find or buy enough food for the household and were able to find needed items at the supermarket/grocery store prior to COVID-19. However, in the current situation, only between 54% and 84% of these respondents said this, with only having enough food to eat being the only item to register more than 80% endorsement.

There were also reductions in money transfer activities though indicated by relatively small percentages of respondents overall (less than 20%). The only increases since COVID-19 recorded are worry about having enough food and worry about having enough household supplies in the future. Segmentation based on the economic impact data revealed five categories of households:

- The Insulated (38%) who have not experienced any negative changes as yet.
- The Worriers (33%) who have not experienced any changes except in the level of worry about food security and availability of household supplies in the future.
- Those with Maximum vulnerability (15%) who have experienced negative impacts in relation to all indicators.
- The Panic Shoppers (10%) who began bulk buying and who experienced less availability of items where they usually buy them.
- The Bulk Buyers (5%) who have experienced no negative changes or even changes in worry but have begun bulk buying.

The main COVID-19 responses of employers are improving cleaning and sanitation of the workplace (~46% of respondents) and providing cleaning and sanitisation facilities (such as soap, hand sanitiser etc.) (~43% of respondents). In addition, between 20 and 30% said that their employers provided information on the coronavirus (~28.5%), implemented social distancing in the workplace (~26%) and implemented a total lockdown of the workplace (~21%). All other actions by employers were identified by at most 20% of the respondents.

Attitude Toward and Perceptions About COVID-19

The importance of understanding attitudes towards coronavirus is that it can provide insights about what people think of it and their chances of becoming infected and what they are willing to do or endure to aid the fight against the virus among other things. The attitude items presented to the respondents support three constructs:

- **Nonchalance** – Nonchalance about the gravity of the COVID-19 outbreak and a sense that it affects the sick and aged so that everyone does not have to worry. The mean of the construct is low (approximately 2 on a 5-point disagree/agree scale) and though there may

be individuals with strong manifestations of this attitude, the attitude itself is not strong at the aggregate level on average.

- **Duty to Humanity** – A feeling of responsibility and perhaps obligation to making an effort to fight the coronavirus. The mean of this construct is high (between 4 and 5 on a 5-point disagree/agree scale) and indicative of a fairly strong sense of duty to do whatever is necessary to curb the spread of the virus
- **Optimism** – A sense of faith in modern medicine to develop a cure quickly and also some belief that Guyanese are somehow especially protected perhaps by some higher power. The average level of this construct is low (approximately 2 on a 5-point disagree/agree scale) and though there may be individuals with high levels, the attitude is not strong at the aggregate level.

Age, living area, education and employment are significantly related to the attitude constructs, depending on the construct whereas sex and having an underlying condition that is a mortality risk in the case of COVID-9 are not. Age is positively related to optimism whereas coastal compared to hinterland residents have stronger nonchalance and optimism. Education has negative linear relationships with nonchalance and optimism and a positive linear relationship with duty to humanity. Finally, people who are employed have a stronger feeling of optimism than those who are not.

In addition to the foregoing, the respondents on average believe that they will be able to cope with being quarantined at home if necessary and are supportive of the school closure across the country. However, they lack confidence in the healthcare system to deal effectively with the coronavirus though their disagreement with its capacity to handle it is not strong.

Lifestyle and Social Activities

Around the world, social distancing is one of the key approaches to combatting COVID-19. The survey respondents were asked about ten activities and whether their level of engagement in each had stopped, been reduced, remained the same or increased since the emergence of COVID-19 in the country.

Less than 30% of the respondents indicated that their level of the activity remained the same or increased in each case. The most drastic changes are for going out to bars/pubs/nightclubs; shaking hands, hugging, kissing etc.; and going out for fun and recreation. Approximately 84.8%, 74.8% and 65.9% of the respondents respectively indicated that they have stopped these activities. The frequency of shopping at the open market (~66.9%) and supermarket (~66.55) was also reduced by many, and majorities of the respondents (between 51.1% and 61.1%) have stopped visiting friends, entertaining visitors and visiting relatives with large percentages (31.9% and 41.9%) indicating reduction in frequency. Many have also stopped (39.8%) or reduced (41.9%) taking public transportation. Though these are overall good results, there are still many who have not stopped or even reduced the frequency of many nonessential social activities.

A final item in the list which is not necessarily a social activity is drinking alcohol. It is only for this item that as many as 31.3% of those who do so indicated an increase in frequency or that things remained the same.

The same items were asked about the rest of the household and the pattern in the responses are quite similar to the responses about the respondent him/herself. The main difference is that the assessment of the household is consistently a bit more stringent.

A latent segmentation of the respondents based on these data revealed three ordinal segments

with different degrees of social distancing. In ascending order, the segments are Social non-distancer (10%), mild social distancer (39%) and strict social distancer (51%). A logistic regression model for the latent segments with the first two segments merged due to the size of one of them, indicate that males are less likely than females to be strict social distancers compared to another type; both secondary and primary education improve the likelihood of being a strict social distancer over the other types, and that employed people are less likely to be strict social distancers than the other types.

Health and Safety Response

This section focuses on preventative actions that improve sanitation, hygiene, health and exposure in general and which are unrelated to social activities.

Between 81.2% and 95.4% of the respondents said that they used hand sanitisers, cleaned/ sanitised the house and washed their hands more frequently since the arrival of COVID-19 in Guyana. However, 88.3% of them have not begun to wear long sleeves more frequently. Between 33.3% and 66.7% have taken more frequent showers, eaten healthier, and began working or studying from home, and sleeping more hours. The responses about the households in general are similar though a bit more stringent in the assessment.

For both the respondent and for the household, there is a heightened sense of importance of cleanliness and sanitisation except perhaps with respect to taking showers. There is also a heightened sense of the importance of staying at home unless it cannot be avoided. Concurrently, there is less emphasis on improving health through actions like sleeping more and eating healthier.

Table of Contents

At a Glance.....	i
About TCG.....	ii
About this Survey.....	ii
Executive Summary	i
List of Tables	vi
List of Figures	vi
1 Introduction	1
2 Method	2
2.1 Sampling	2
2.2 Survey Instrument.....	3
2.3 Survey Execution.....	4
2.4 Data Analysis.....	4
2.4.1 Attitude to Coronavirus Model	5
2.4.2 Latent Class Model for Economic Impact.....	6
2.4.3 Latent Class Model for Lifestyle and Social Activities	7
3 Results.....	9
3.1 Demographic Information.....	9
3.2 Knowledge about COVID-19	11
3.3 Socioeconomic Impact of COVID-19	18
3.3.1 Employers' Response	25
3.4 Attitude Toward and Perceptions About COVID-19.....	27
3.5 Lifestyle and Social Activities	32
3.6 Health and Safety Response	37
4 References	39
5 Annex: Survey Questionnaire	40

List of Tables

Table 1 Population and sample.....	2
Table 2 Model fit for CFA of attitude to coronavirus.....	5
Table 3 Items in the economic impact model.....	6
Table 4 Model fit for economic impact segmentation (LCA)	7
Table 5 Lifestyle and social activities items	7
Table 6 Model fit for lifestyle and social activities segmentation (LCA)	8
Table 7 Household composition	10
Table 8 Profiles of economic impact segments	23
Table 9 Attitude to coronavirus	27
Table 10 Structural equations model for attitude to coronavirus	29
Table 11 Coronavirus concerns.....	30
Table 12 Profiles for lifestyle and social activities segments.....	34
Table 13 Logit model for lifestyle and social activities segments	36

List of Figures

Figure 1 sex of respondents.....	9
Figure 2 Highest level of education completed	9
Figure 3 Place of residence	10
Figure 4 Knowledge of people who tested positive for COVID-19.....	11
Figure 5 Suspicions about people with COVID-19 infection	12
Figure 6 Views on COVID-19 detection and transmission	12
Figure 7 Views on COVID-19 detection and transmission by area type.....	13
Figure 8 What people say are COVID-19 symptoms.....	14
Figure 9 Comparison of what people say are COVID-19 symptoms by area type	14
Figure 10 Underlying coronavirus mortality risk factors.....	16
Figure 11 Steps to take in case of suspected COVID-19 infection	17
Figure 12 Source of information on COVID-19	17
Figure 13 Employment status before COVID-19 in Guyana	19
Figure 14 Employment status with COVID-19 in Guyana	19
Figure 15 Impact on personal income	20
Figure 16 Impact on household income (reduced sample)	21
Figure 17 Household economic and food security	22
Figure 18 Employer response	25
Figure 19 Individual social response to COVID-19	32
Figure 20 Household social response to COVID-19.....	33
Figure 21 Individual health and safety response to COVID-19	37
Figure 22 Household health and safety response to COVID-19.....	38

1 Introduction

The coronavirus disease, otherwise referred to as COVID-19, emerged in China in December 2019 and has since become a global pandemic. Guyana's first confirmed COVID-19 case was announced on March 11, 2020. This was an imported case wherein the person arrived in the country on March 5, 2020 and died on March 11, 2020. Since then, attempts have been made by citizens and the state to respond to the coronavirus outbreak.

As reported in the media around the time, there were fears about shortages of food and household items and about rapid spread of the virus in the face of reluctance on the part of citizens to adopt social distancing measures among other issues. Notwithstanding the necessity of state actions and that of many other stakeholders to try to control the spread of the virus, information is important. This goes beyond official statistics to encompass many elements of how people are coping and their preparedness for COVID-19. This report is a documentation of the results of a survey of citizens on issues related to COVID-19 in Guyana. It is important to note that when the survey commenced there had been 8 officially recorded cases of COVID-19 infection and one related death in Guyana and these moved to 23 and 4 respectively by the time the data collection was completed.

The survey itself was a voluntary effort on the part of The Consultancy Group Inc (TCG) and several individual partners inclusive of academics, students, persons involved in NGO work, public servants and other citizens who were willing and able to give of their time to the work that needed to be done to set up and execute the survey and subsequently document the results in a usable format. The overarching hope is that the information contributes in some way to the fight against the coronavirus. No claims about the extent of the impact of the information are herein made. The results are provided in good faith and in the hope that they will be used to the extent possible to aid the fight against the spread of coronavirus in Guyana.

2 Method

Given that the coronavirus spreads in social gatherings and generally while in proximity to and contact with others, the decision was taken early that this could not be a face-to-face survey. The options available were to administer it online or to execute a telephone survey. Against the backdrop of the urgency of providing useful information, it was felt that an online survey will likely take too long given that the method of contacting people would, given what was available, be snowballing. Ultimately, a telephone survey was conducted and the data were collected between March 28 and April 3, 2020.

2.1 Sampling

The survey was designed to cover the ten administrative regions of Guyana. Based on data from the most recent census (executed in 2012), Guyana has an over age 15 population of 522,108 distributed over the administrative regions as shown in Table 1.

Table 1 Population and sample

Region	15+ Population	Sample 1000	Sample 400
1	15,438	32	12
2	32,086	66	25
3	77,783	159	60
4	224,385	458	172
5	34,970	72	27
6	78,792	161	61
7	12,007	25	10
8	6,703	14	6
9	13,249	28	11
10	26,695	55	21
Total	522108	1070	405

In the first instance a sample of 400 is identified to guarantee estimation of a mean with 95% confidence while maintaining a margin of error or at most 5%. In fact, a sample of 384 is adequate for this but the total was set at 400. This sample of 400 was determined to be adequate for insights at the national level. However, it was also thought that disaggregation into coastal (2, 3, 4, 5, 6 and 10) and hinterland regions (1, 7, 8 and 9) would offer a more nuanced and desirable perspective and capture important differences in local context. To this end a second target sample of 1000 was identified with potential oversampling the smaller hinterland regions.

Based on these target totals, the sample allocations identified in Table 1 were determined. However, the larger target sample was eventually abandoned when the survey was underway and the real difficulties in reaching that target via the survey mode used became clear. This report is therefore based on the target sample of 400 which in reality is 411 before application of sampling weights to preserve the regional proportions in the population.

As indicated previously, the survey was conducted via telephone. This involved the difficulty of obtaining telephone numbers that can be called in the absence of infrastructure to facilitate an approach such as random digit dialling. Mobile phones have become quite popular in Guyana over the last decade or more but mobile numbers are not listed in telephone directories. Telephone numbers which were largely for mobile phones were obtained from records of registrants of meetings, workshops and other such gatherings over the last decade or so who had provided this information in their contact details. In addition to this, a snowballing approach wherein persons interviewed could recommend others to be interviewed was adopted. The latter approach did not work very well and did not contribute much to the pool of respondents.

Whenever the number dialled was the personal mobile number of a particular person, that person was interviewed in the survey. If the number belonged to a household as in the case of landline numbers, the person interviewed was any adult who could speak on the household issues since the COVID-19 outbreak. All respondents were required to be adults which in the Guyanese context is defined as a person who is at least eighteen years old.

Non-contact via the numbers on record was a major problem. To put it into perspective, the survey achieved 411 agreements to participate from a total of 895 call attempts to unique numbers. This would mean that the percentage of successful interviews out of all contact attempts was 45.9% which indicates that a majority of the call attempts did not result in an interview. On closer examination of the unsuccessful call attempts, it turns out that refusals account for just 120 of the contact attempts. If the successful interviews and the refusals alone are considered, the response rate would be 77.4%. Many of the telephone numbers on record seemed to no longer be in service and given that they were mostly mobile numbers this would mean that over time people have changed their telephone numbers.

Ultimately and with all things considered, the survey cannot be said to be representative of the Guyanese population due to the following:

1. The phone numbers used were not a random selection from all possible numbers representing a random selection of households. It is likely that there is an oversampling of people with higher socioeconomic status given the source of the telephone numbers used.
2. Though it did not contribute very much to the overall sample, snowballing was also used and this likely involved some extent of self-selection and also inclusion of persons that might be similar in perspective to those who recommended them. This is not an inescapable link but it cannot be dismissed either.

Notwithstanding the arguments against the sample being nationally representative, the data are still useful in providing baseline insights into how people are responding to COVID-19 and some of the challenges they face. In the context where it is ill-advised to adopt a face-to-face survey mode which usually works well in Guyana, the telephone interview approach as it was implemented was an appropriate though not ideal alternative.

2.2 Survey Instrument

The instrument was developed specifically for this survey. It initially included six sections focusing on the following topic areas:

1. Background information

2. Knowledge of coronavirus infection
3. Economic situation and food safety
4. Attitudinal response
5. Lifestyle
6. State response

The foci and items within each of the areas may be pursued in the instrument included in the annex.

The initial instrument included a section on the response of the state to the coronavirus outbreak. However, this section was dropped following a period of survey administration when it became clear that a shorter interview would enhance survey completion. An analysis of the data on the response of the state is not included in this report.

2.3 Survey Execution

In the context of social distancing, there were no in-person meetings to get things organised and running. The survey team worked remotely utilising recordings and popular communication platforms to deliver training and guidance and oversight as necessary during the process.

A total of 24 interviewers participated in the survey. They were furnished with recordings and documentation as training materials prior to synchronous engagement using an online meeting platform. The training was done over three days and culminated in a pilot session wherein trial interviews were executed using the telephone following which the team regrouped for feedback. Suggestions on modifications to the process and the instrument to enhance the experience for both the respondents and the interviewers were also obtained in this session.

During the interviews, the data were recorded directly into an online survey form set up using the KoBoToolbox platform.

2.4 Data Analysis

The data analysis draws heavily on charts which were inspected for whatever insights they availed. In addition, the analysis also employed confirmatory factor analysis (CFA), structural equations modelling (SEM), latent class analysis, specifically, latent class cluster analysis (LCCA) and logistic regression modelling. These techniques were applied when appropriate and when they offered important further insights.

The fit of the models was determined as follows:

- CFA and SEM – root mean square error (RMSEA) less than or equal to 0.06, comparative fit index (CFI) greater than or equal to 0.95 and standardised root mean square residual (SRMS) less than or equal to 0.05 are indicative of good fit (Byrne, 1989; Hu & Bentler, 1999). Factor loadings greater than or equal to 0.7 were regarded as ideal as was an average variance extracted (AVE) of at least 0.5.
- LCCA – The best model was determined as the most parsimonious with the minimum Bayesian Information Criterion (BIC) and non-significant L-squared statistic (Magidson & Vermont, 2004). Nevertheless, a final decision was also subject to the interpretability of the model.
- Logistic Regression – The fit of the model was determined by a significant likelihood ratio chi-square statistic. the significance of individual effects was determined from Wald statistic.

Overall, the level of significance adopted in this report is 5%. Accordingly, whenever means are estimated, the 95% confidence intervals are also reported.

2.4.1 Attitude to Coronavirus Model

To determine what constructs are measured by the items and how well they are measured, the measurements were explored within a confirmatory factor analysis framework. Some items were dropped in the process because they showed low item convergent validity in the sense that the factor loadings on the target constructs were quite low. Results for the accepted model are presented in Table 2. Notably, the average variance extracted for the duty to humanity construct is a bit low (below the 0.50 benchmark). The items that were dropped from consideration for the model were analysed separately and presented in the results section of this report.

Table 2 Model fit for CFA of attitude to coronavirus

	Nonchalance	Duty to Humanity	Optimism
Coronavirus outbreak is like any other outbreak, we just have to continue living	0.73		
There is too much hype about the coronavirus, it is not that dangerous	0.71		
The coronavirus affects mainly older and sick people so everyone doesn't have to.	0.70		
We need to make a special effort to avoid coronavirus infection		0.75	
Everyone has a duty to help prevent the spread of the coronavirus		0.63	
Guyana and Guyanese are protected, the virus will not affect us in the same way			0.82
A cure for the coronavirus will be available soon so we don't have to worry too			0.74
Average Variance Extracted	0.51	0.48	0.61
Cronbach Alpha	0.74	0.64	0.75
RMSEA = 0.03, CFI = 0.99, SRMR = 0.02			
<i>Response scale; 1 – disagree strongly, 2 – disagree, 3 – neither agree nor disagree, 4 – agree, 5 – agree strongly</i>			

The constructs measured are as follows:

- **Nonchalance** – This construct captures the nonchalance regarding gravity of the COVID-19 outbreak and a sense that it is something that affects more so the sick and aged so that everyone does not have to worry. Nonchalance is measured by three items:
 - *Coronavirus outbreak is like any other outbreak, we just have to continue living*
 - *There is too much hype about the coronavirus, it is not that dangerous*
 - *The coronavirus affects mainly older and sick people so everyone doesn't have to worry.*

- **Duty to Humanity** – Duty to humanity captures a sense of responsibility and perhaps obligation to making an effort to fight the virus. In some sense it is the counterpart of a nonchalant attitude though not entirely so. This construct is measured by two items:
 - *We need to make a special effort to avoid coronavirus infection*
 - *Everyone has a duty to help prevent the spread of the coronavirus*
- **Optimism** – Optimism is an unsatisfactory term for the construct which conveys a sense of faith in modern medicine to develop a cure quickly and also looking toward some higher power for protection in the meantime. In the case of the latter, there might be some sense that Guyanese are somehow especially protected. Optimism has two item indicators:
 - *Guyana and Guyanese are protected, the virus will not affect us in the same way as other people in other countries*
 - *A cure for the coronavirus will be available soon so we don't have to worry too much*

2.4.2 Latent Class Model for Economic Impact

The economic impact model segments the households represented in the data using latent class cluster analysis based on the responses to the items in Table 3. The responses were provided as yes or no and separately for before and after the emergence of coronavirus in Guyana. A response scale was constructed by subtracting the answers for before from the answers for after thereby capturing whether there was a decline (-1), the situation remained the same (0) or there was an increase (1). The segmentation of the data was performed on this constructed variable.

It is important to record that the model initially included relating to money transfers. Those items focused on receiving money from relatives overseas, sending money to relatives overseas, receiving money from relatives within Guyana and sending money to relatives within Guyana. The initial set also included the item *I/we have enough food to eat*. A preliminary LCCA revealed that these items contributed nothing to latent segments determined. The classes of households could not be distinguished based on changes in anything related to receiving from or sending money to family members and changes in having enough food to eat before and after the COVID-19 outbreak in Guyana. The posterior profile probabilities indicated that they were always the “same” in each segment. Consequently, they were removed and the model was estimated without them.

Table 3 Items in the economic impact model

Please answer yes or not as the case might be for the state of things before the outbreak and the state of things as they are now	
1.	I/We paid my/our bills/ bank loan etc. on time
2.	I/We are usually able to find/ buy enough food for our household
3.	I/We are able to find needed items at the supermarket/grocery stores/ open market where we usually buy them
4.	I/We buy groceries in bulk
5.	I/We buy household items in bulk
6.	I/We worry about having enough food in the future
7.	I/We worry about having enough household supplies in the future
Constructed response: -1 – decrease/decline, 0 – same/no change, 1 – increase/improve.	

The model fit statistics indicate that though the 5-class model did not have the lowest BIC value, the decrease in the BIC achieved by adding another class (1.194) is quite small. This additional class was therefore not allowed. The L-squared statistic was however significant until the 8-class solution. The decision on the number of classes was made mainly on the indication from the BIC and this was to accept the five-class model.

Table 4 Model fit for economic impact segmentation (LCA)

Model	BIC(LL)	L ²	df	p-value
1-Cluster	4095.567	1171.385	391	7.20E-79
2-Cluster	3818.300	846.0871	383	5.40E-37
3-Cluster	3634.986	614.7415	375	6.90E-14
4-Cluster	3595.323	527.0476	367	8.00E-08
5-Cluster	3586.785	470.4792	359	6.70E-05
6-Cluster	3585.591	421.2533	351	0.006
7-Cluster	3613.507	401.1387	343	0.017
8-Cluster	3630.606	370.2063	335	0.09
5-Cluster (residual correlation)	3564.852	436.5381	357	0.003

Two modifications were admitted to the accepted model. These are the modelling of residual correlations between items 1 and 2 and items 2 and 3 as they appear in Table 3. Prior to modelling them, the residual correlations were 9.9 and 17.2 respectively. The five-class model with the freed residual correlations has an entropy R-squared value of 0.91 which indicates that the classifications are quite distinct. The solution is described in the results section of this report.

2.4.3 Latent Class Model for Lifestyle and Social Activities

The lifestyle and social activities items included in the latent class cluster model are presented in Table 5. The respondents were asked to indicate whether the level of their activities in relation to each was stopped, reduced, remained the same or was increased since COVID-19 arrived in Guyana.

Table 5 Lifestyle and social activities items

<i>For each item, indicate whether you stopped, reduced or maintained he same level since the arrival of the coronavirus in Guyana.</i>
1. Going out for fun and recreation
2. Visiting friends
3. Visiting relatives
4. Entertaining visitors
5. Shopping at the supermarket
6. Shopping at the open market
7. Shaking hands, hugging, kissing people etc.
<i>Responses: 1 – stopped, 2 – reduced, 3 – same. The increased category was merged with the same category.</i>

In preparation for segmentation of the data based on the lifestyle and social activities responses, the “same” and “increased” response options were merged into a new “same” category due to the small number of responses indicating an increase. In addition, three items (not included in Table 5) were excluded from the model because they involved many not applicable responses which would unduly reduce the data available for the segmentation. The items excluded address going to bars/ pubs/ nightclubs, drinking alcohol and taking public transportation. One other matter is that this segmentation was done only for the individual responses and not for the responses about the household. However, given that the household responses have a very similar pattern to the individual responses (see results section), it is likely that similar segments are relevant.

Table 6 Model fit for lifestyle and social activities segmentation (LCA)

	BIC(LL)	L²	df	p-value
1-Cluster	4288.564	1693.63	391	3.40E-161
2-Cluster	3974.233	1331.267	383	5.80E-105
3-Cluster	3921.966	1230.97	375	1.10E-91
4-Cluster	3924.972	1185.944	367	5.80E-87
5-Cluster	3936.422	1149.364	359	1.60E-83
3-Cluster (residual correlation)	3868.685	1165.681	373	2.00E-82

The BIC value indicates that the 3-class solution is best fitting for the data. The L-squared statistic, however, remained significant for all the model, even when up to the 9-class solution was estimated. This statistic was ultimately not used as the basis for a decision. The 3-class solution included two large residual correlations between items 4 and 7 (correlation = 11.79) and between items 6 and 5 (correlation = 36.04) as they are presented in Table 5. These correlations were relaxed resulting in the final accepted 3-class model represented in Table 6. This mode has an entropy R-squared of 0.77 which means that the classifications are distinct. The model results are described in the results section of this report.

3 Results

3.1 Demographic Information

Approximately 59.57% of the respondents who participated in the survey are women (Figure 1) and the participants have an average age of 38.94 years (SD = 15.01). Secondary and university education are the two most popular categories of the highest level of education completed by the respondents (Figure 2). In particular approximately 33% and 34% of them completed up to secondary and university education respectively.

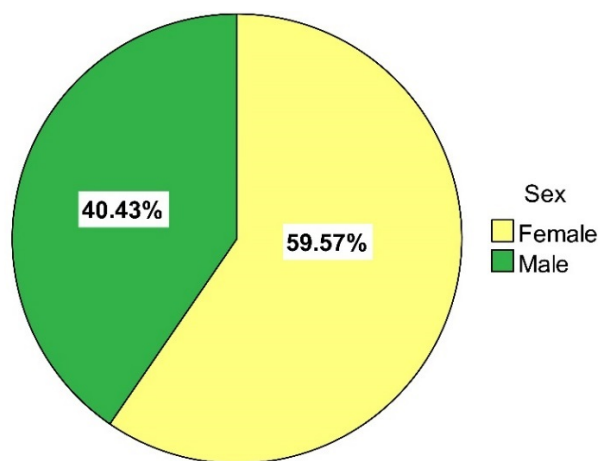


Figure 1 sex of respondents

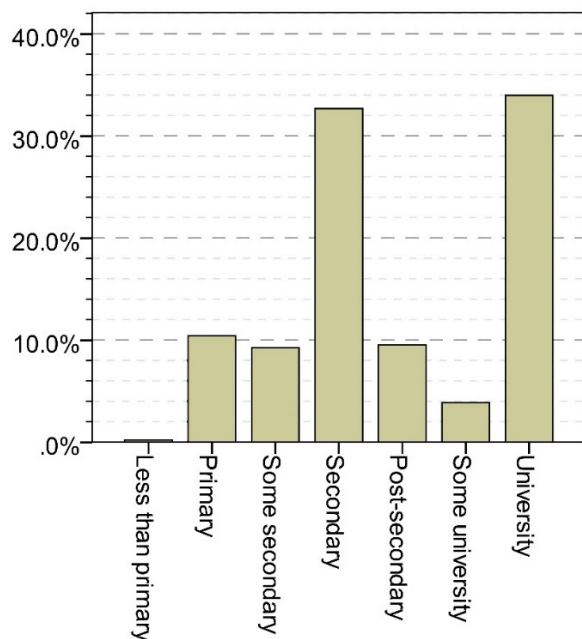


Figure 2 Highest level of education completed

Table 7 Household composition

	n	Mean	Std. Deviation
How many people live in your household?	404	4.00	2.20
How many children (below 18 years) live in your household?	404	1.07	1.45
How many elderly (65 years and older) people live in your household?	404	0.28	0.54

It is not all surprising that completing up to secondary education would be relevant to many, however, the percentage that completed university education is higher than expected of a random national sample of adults. The survey itself allowed self-selection of the respondent at the level of the household and this might reflect the household's choice of a representative. However, it is more likely that the high incidence of university education reflects the means by which the mobile numbers called in the survey were obtained (see methods section) which is likely to oversample individuals with higher socioeconomic status. Nevertheless, as argued in the method section, there were limited viable alternatives and regardless, the information provided in this report provide useful insights about how people have been responding to the coronavirus in the early stages.

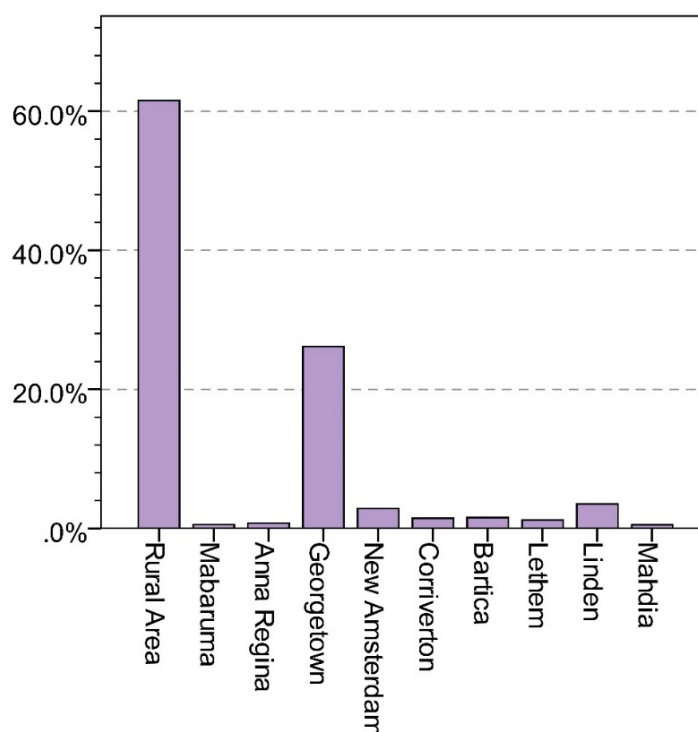


Figure 3 Place of residence

The respondents live in households composed of four (4) persons on average with a range from 1 to 14. This includes on average, 1.07 children (below age 18) and 0.28 elderly (65 years and older) (see Table 7).

Just over 60% of these households are located in rural areas and this means that close to 40% of them are in areas that are officially recognised as townships including the capital city of Georgetown (Figure 3).

3.2 Knowledge about COVID-19

To begin, the respondents were asked whether they knew of individuals who were tested and diagnosed as being infected with the coronavirus and whether they personally suspected anyone of being infected by the virus. In both cases, the questions focused on individuals within the networks of the respondents so that they were specifically directed away from reporting on information provided in the news or about individuals that they did not actually know. The results for these two items are presented in Figure 4 and Figure 5.

Large majorities of the respondents indicated that they are unaware of people who have been tested and diagnosed with COVID-19 (~87%) and of any cases of suspected infection (~84%). Less than 2% of them indicated that they know of a community member that tested positive whereas approximately 3% reported some suspicion that a community member was infected. Up to the time that the survey was completed there had been 23 officially recorded cases of coronavirus infection and 4 related deaths in the country. In addition, testing was not being done systematically or widely and one might therefore expect the number of known cases to be quite low but that suspected cases would be higher. However, though there are more categories of individuals registering with above 0% for suspected cases, the percentages are quite low (less than 1%) except for community member as indicated earlier.

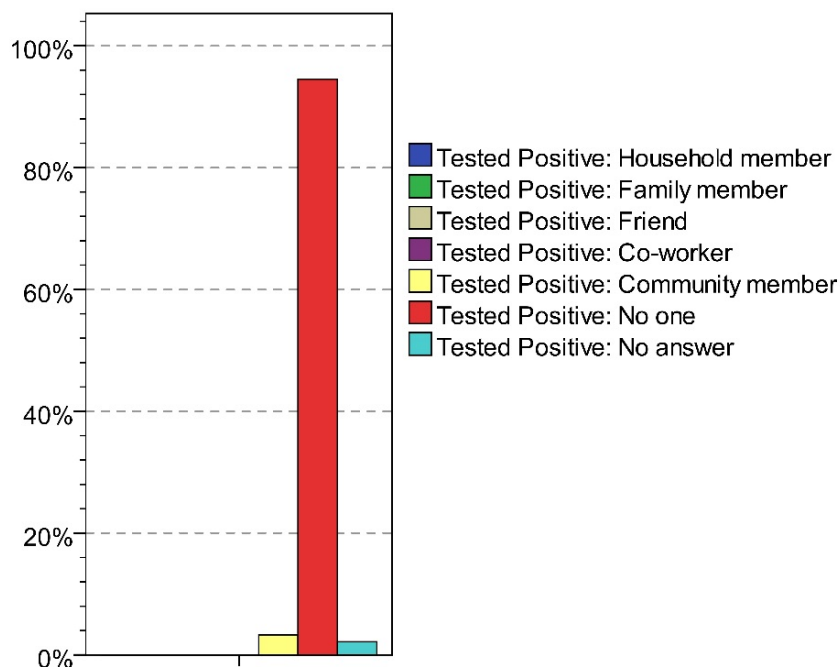


Figure 4 Knowledge of people who tested positive for COVID-19

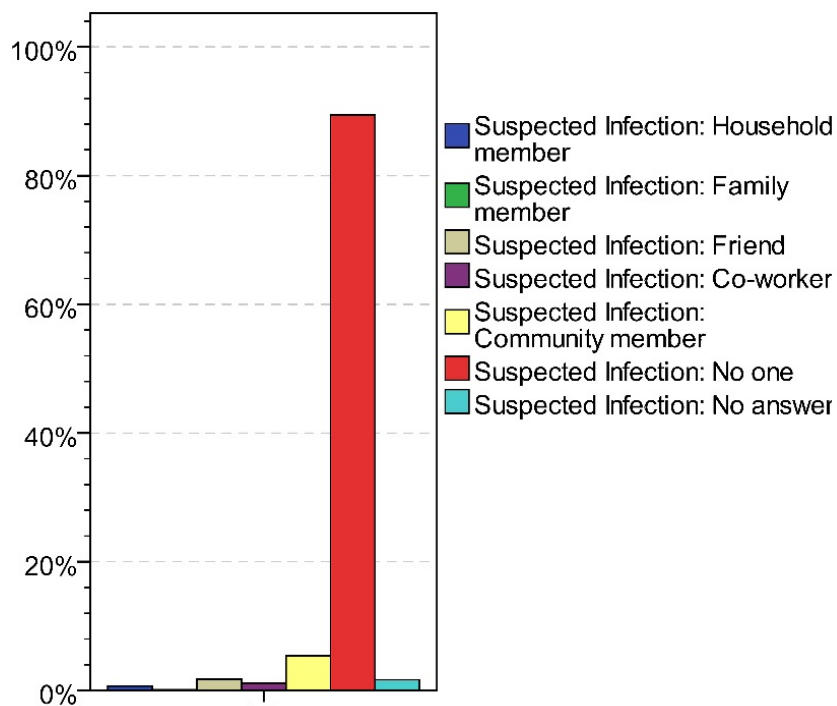


Figure 5 Suspicions about people with COVID-19 infection

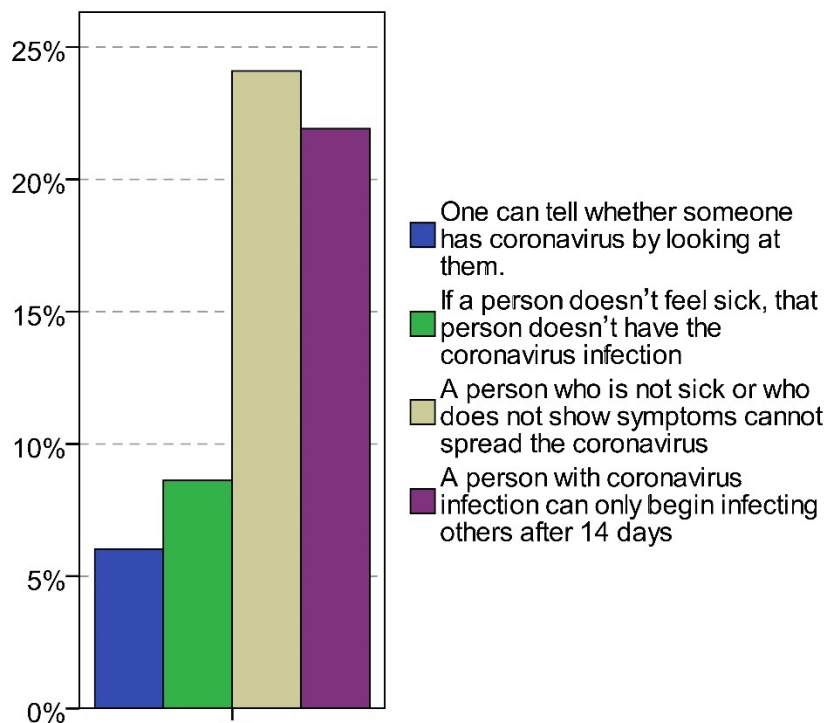


Figure 6 Views on COVID-19 detection and transmission

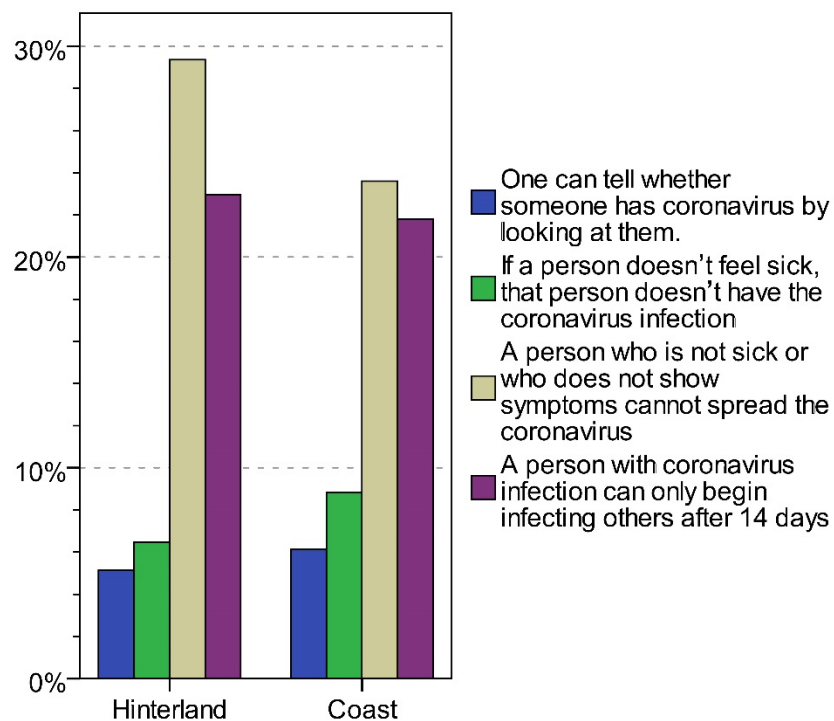


Figure 7 Views on COVID-19 detection and transmission by area type

An understanding of how the coronavirus manifests itself in people and how it can be transmitted to others is important for knowing what to look for and how people can protect themselves and others from infection. Against this backdrop, the respondents were asked about some issues related to its transmission and about symptoms of COVID-19 infection.

Approximately 6% of the respondents agreed that one can tell whether someone else is infected by just looking at them and approximately 8% agreed that if a person doesn't feel sick that person isn't infected (Figure 6). Both of these answers are incorrect given the information available indicating that people can be asymptomatic and still be infected and capable of spreading the virus to others. That so few provided the incorrect answers to these items is reassuring but nevertheless concerning since there still appears to be people who are unaware and might therefore not be fully prepared to protect themselves and others. The concern is underscored when it is considered that in the context of preventing COVID-19 infection, one's best efforts can be undone by another person's carelessness and misconceptions.

Also reassuring but concerning are the responses to the items: a person who is not sick or does not show symptoms cannot spread the coronavirus (yes = ~24%) and a person can only begin to spread the virus after being infected for 14 days (yes = ~22%) (Figure 6). Both of these were responded to incorrectly in the affirmative by fewer than 25% of the respondents. The main difference in the responses between hinterland and coastal residents is that a higher percentage of hinterland residents (~30% compared to ~23%) believe that a person must be symptomatic in order to spread the coronavirus (Figure 7).

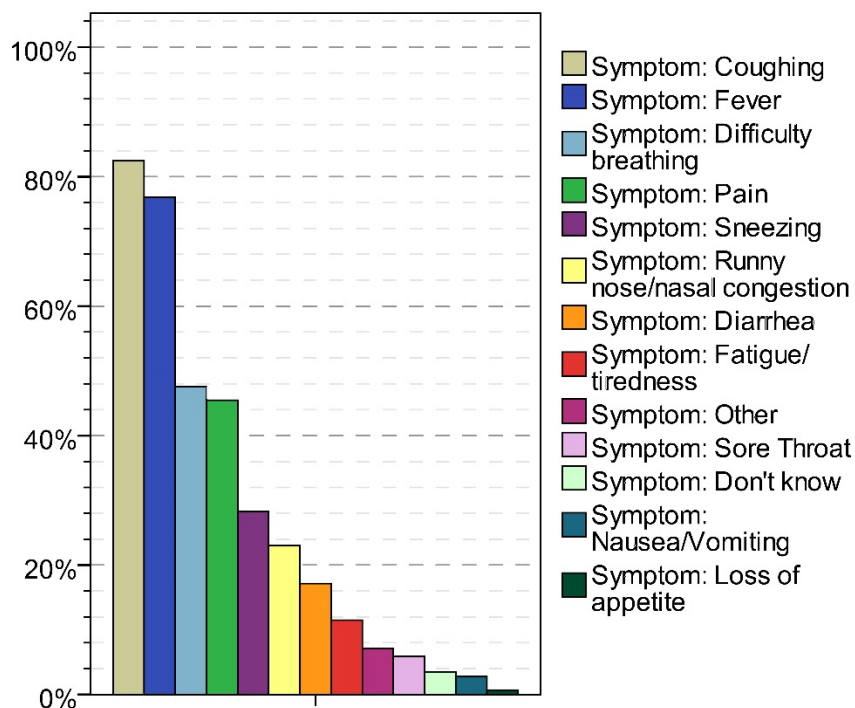


Figure 8 What people say are COVID-19 symptoms

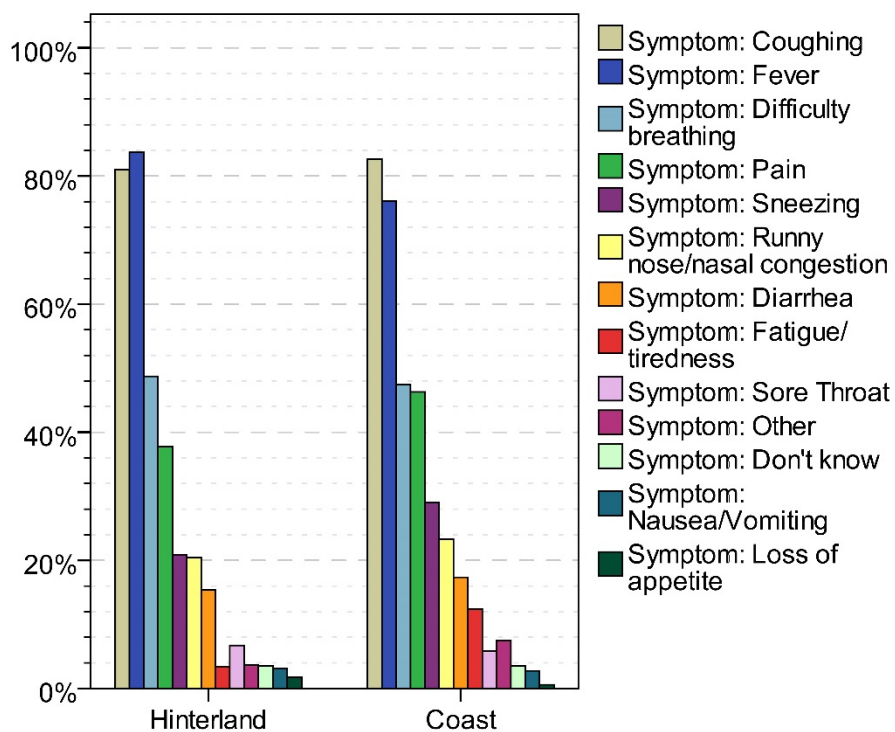


Figure 9 Comparison of what people say are COVID-19 symptoms by area type

The website of the WHO and that of many other organisations such as the CDC indicate that the common symptoms of coronavirus infection are fever, tiredness and dry cough. In addition to this they report that other symptoms that might appear are shortness of breath, aches and pains, sore throat and diarrhoea, nausea and runny nose. The latter three are identified as occurring in “very few people”¹.

Whereas the common coronavirus symptoms and the other symptoms are known by many in Guyana, there might still be some lack of knowledge about the COVID-19 symptoms since approximately 82%, 76% and 12% of the respondents were able to identify the common COVID-19 symptoms of cough, fever and tiredness respectively. In particular, coughing seems to be the most recognisable symptom whereas tiredness is especially unknown. Whether this is due to the fact that a cough can be seen and heard and therefore easily detected compared to a fever which might require a temperature reading or touching the individual and tiredness which even further requires a report from the affected individual is not immediately known. There might therefore be an overemphasis on cough potentially leading to oversimplification and unwarranted suspicions about potential infections prior to confirmation by testing. There might accordingly also be overreactions to coughing by individuals as a result.

Apart from coughing and fever, no symptom of coronavirus infection was identified by at least 50% of the respondents (Figure 8). Breathing difficulty and pain were identified by approximately 48% and 45% respectively whereas nasal congestion was identified by approximately 23% of the respondents. Notably, sneezing which is not a symptom of COVID-19 infection was identified as such by approximately 28% of the individuals. Each of the other symptoms was identified by fewer than 20% of the respondents.

The comparison of symptom identification by area type does not reveal much differences. There are slightly larger percentages of coastal residents than hinterland residents who identified pain, nasal congestion, tiredness or fatigue but also with respect to identification of sneezing as a symptom. While these largely indicate that the coastal residents are somewhat more informed about the symptoms, they are slightly more misinformed in relation to sneezing. Nevertheless, overall, it is important to recognise that relatively few people correctly identified symptoms other than cough and fever.

¹ https://www.who.int/health-topics/coronavirus#tab=tab_3

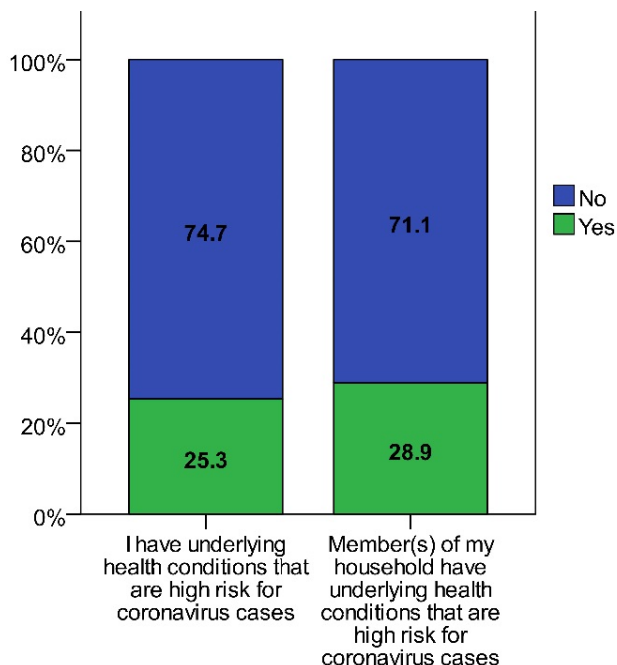


Figure 10 Underlying coronavirus mortality risk factors

In the survey, the respondents were asked whether they knew of any underlying conditions that are risk factors for COVID-19 mortality that they have or that members of their households have. The risk factors were not specified for the respondent. Hence, the accuracy of the response depends on what they actually knew. In response, approximately 25.3% of them indicated that they had underlying risk factors and 28.9% of them said that members of their households had such underlying conditions. One of the potential issues is that having underlying risk conditions for COVID-19 mortality might impact on how people respond to the pandemic.

On the matter of what people should do if they suspect that they have been infected by the coronavirus, two main things emerge. Approximately 71% of the respondents said that they should call the coronavirus hotline and approximately 52% said that they should self-quarantine or self-isolate at home (Figure 11). Both of these steps are good measures to take. However, there are still people who are not aware that these steps should be taken. The third most popular recommendation, indicated by approximately 14% of the respondents, is visiting a hospital or health facility immediately. This might not be the most prudent step to take without first contacting the facility. All other steps identified were indicated by at most 4% of the respondents.

The survey instrument included a question on sources of information about the coronavirus. It presented several options and asked the respondent to indicate all that apply to him/her. The options are a combination of information sources and media through which information is obtained (see Figure 12). For example, some social media options such as WhatsApp are platforms where persons can access information shared or posted by people within their networks but this may not be the source of origin of the information or may not be official information. In contrast, media such as YouTube, television and websites of organisations might be regarded as the source of origin of the information.

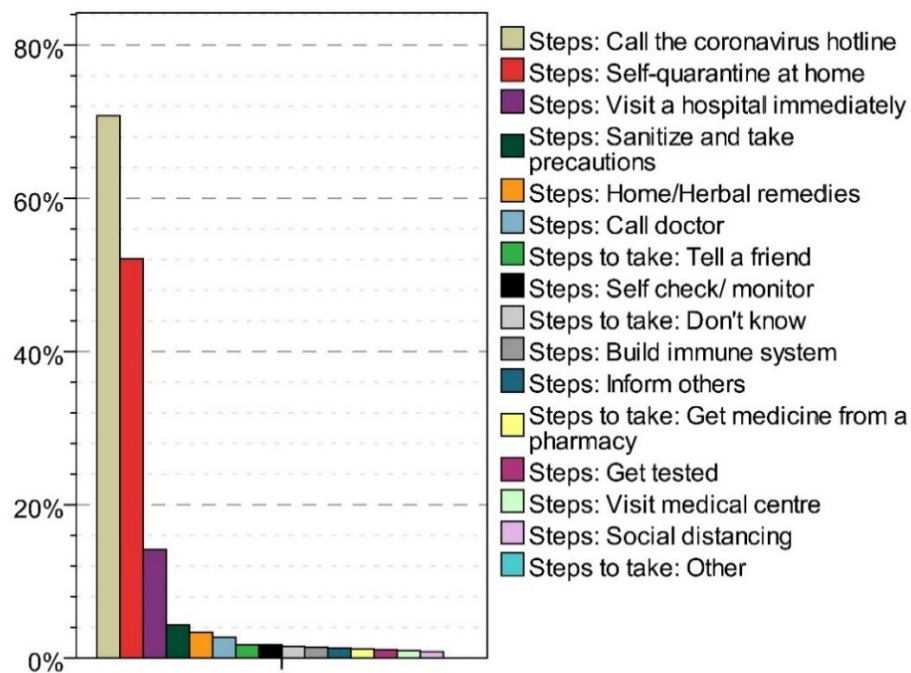


Figure 11 Steps to take in case of suspected COVID-19 infection

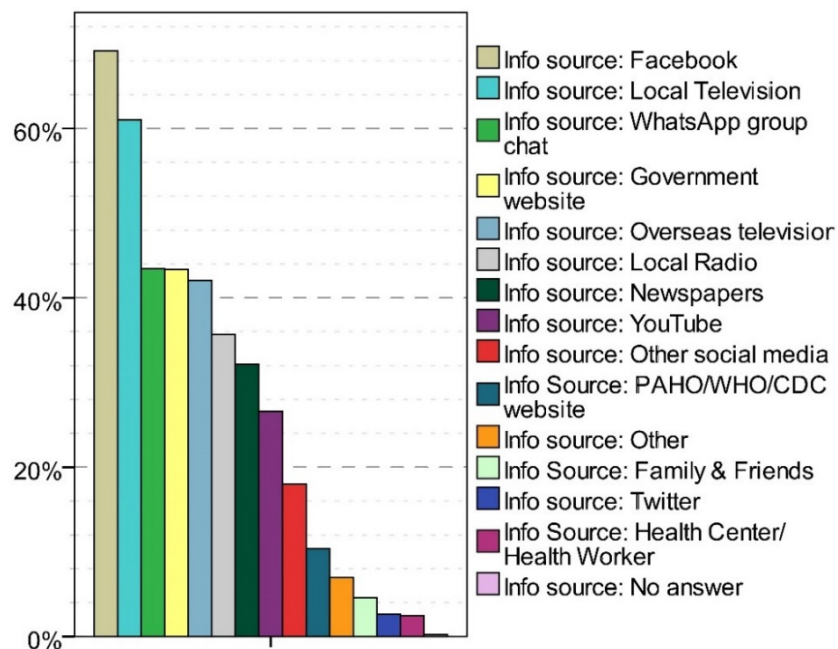


Figure 12 Source of information on COVID-19

The most popular sources and the only ones that were identified by more than 60% of the respondents are Facebook (~69%) and local television (~61%) (Figure 12). Following these two are WhatsApp group chat, government website and overseas television which were identified by between 40% and 44% of the respondents. Following this group are local radio, newspapers and YouTube which were identified by

between 25% and 36%. The final grouping of sources in which each was identified by fewer than 20% of the respondents include the PAHO/WHO/ CDC websites among a few other sources.

Given the distribution over the sources of information, it appears that using Facebook and local television can be effective means of reaching large numbers of people with messages and information about COVID-19. WhatsApp and government website are also quite popular sources. The website of the government is expected to provide verified information and official statistics on COVID-19. Though it is already a popular source, there might be benefits to the citizens to providing the information via Facebook but this might need to be a page dedicated to only COVID-19 information.

One of the realities in modern times is fake news and its potential to misinform. Consumers of information now have the added responsibility of discerning what is authentic and what is fake information. In response to the statement that “I have a hard time figuring out what information I receive about the coronavirus is real and which is fake or just rumours” the participants provided an average rating of 2.89 (SD = 1.21, n = 400) on a five-point agree/disagree rating scale. This average has a 95% confidence interval ranging from 2.77 to 3.01 which includes the middle value of the scale. The average ratings provided by the participants is not distinguishable from the scale value 3 and we conclude that they on average, neither agree nor disagree with the statement. There therefore seems to be some sense of ambivalence about their own abilities (or perhaps inclination) to interrogate the information received in order to determine whether it is authentic. This is a concern given the popularity of information sources that cannot immediately be thought of as providing official and verified information.

3.3 Socioeconomic Impact of COVID-19

Prior to the emergence of COVID-19 in Guyana, approximately 9.5% of the respondents were unemployed (Figure 13). However, 17.8% of them indicated that they were unemployed since the virus emerged (Figure 14). This is an increase in unemployment by 8.3 percentage points. Furthermore, there was a decrease in each of the employment categories except for housewife/man/homemaker, doing odd jobs as they are available and unemployed (see Figure 13 and Figure 14).

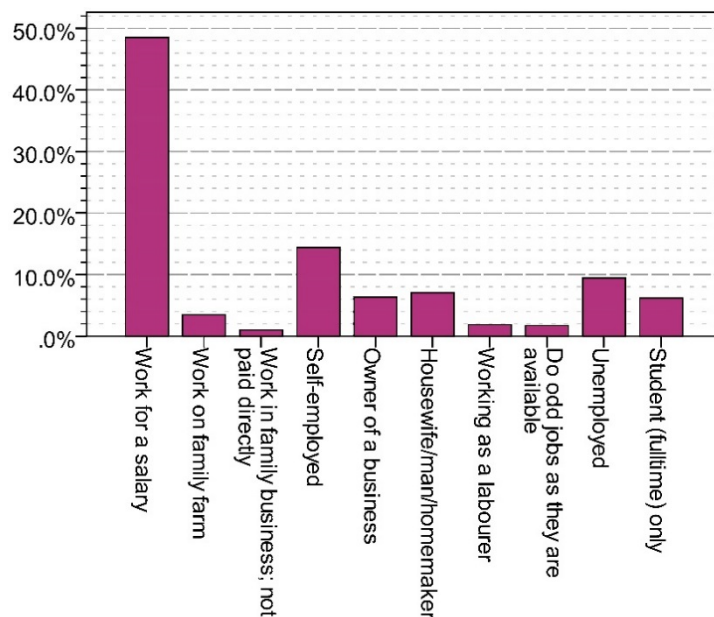


Figure 13 Employment status before COVID-19 in Guyana

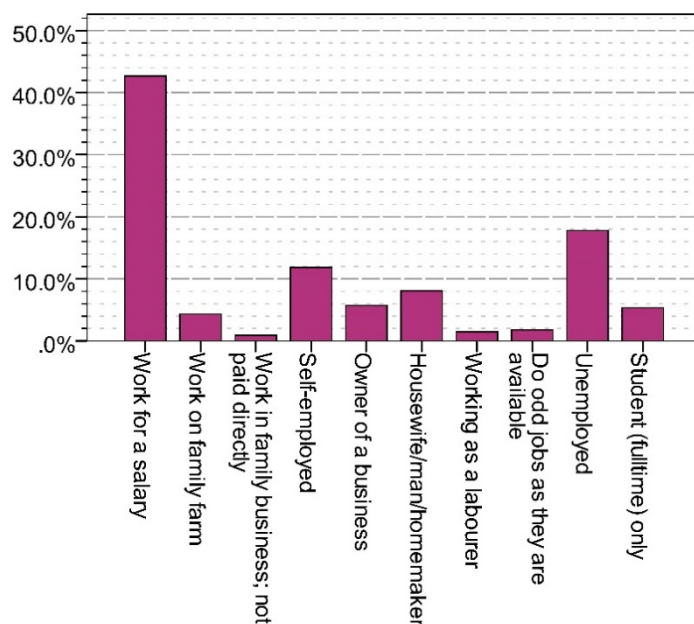


Figure 14 Employment status with COVID-19 in Guyana

Though the sizes of the increases in these categories are small, they seem to represent shifts from employment categories in which there might be a fixed and perhaps also steady income to either no income at all or uncertainty about being able to work and earn as in the case of doing odd jobs as they become available. This is an early but important impact of COVID-19 in Guyana on the economic security of citizens. If this continues and perhaps accelerates, it might be necessary to consider relief packages for

households. At the time data collection began, no such packages were being distributed. However, by the time of writing this report, distribution of food hampers had begun. In particular, the Civil Defence Commission began distributing relief packages (hampers) on March 31, 2020. We do not know what coverage of the vulnerable population is envisioned and whether the programme itself will target all those who have begun to experience such difficulties due to the coronavirus. This should be clarified in the near future.

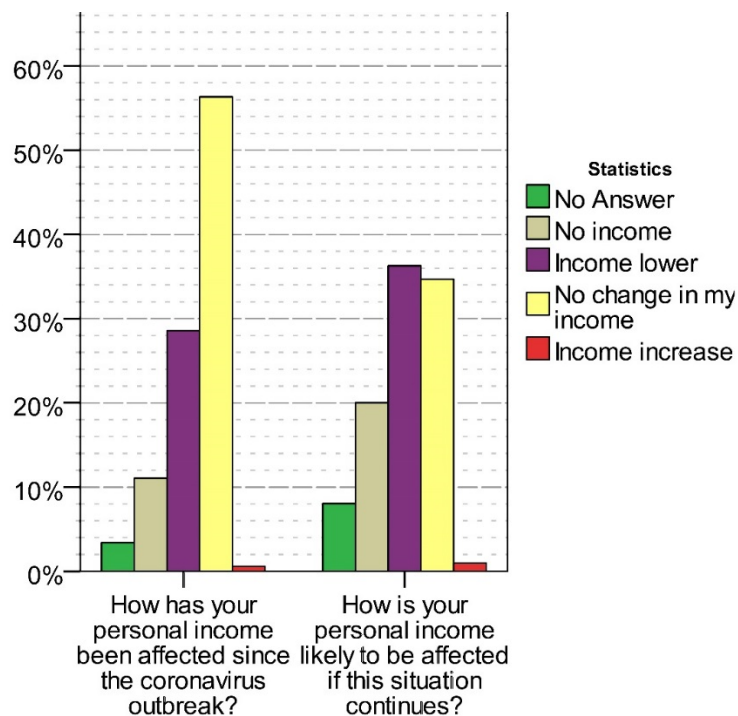


Figure 15 Impact on personal income

When asked further about how the coronavirus pandemic has affected their personal income since the outbreak, a majority (~56%) of the respondents indicated that there has been no change in their income. This is not the case for everyone since approximately 11% of them indicated that they now have no income and approximately 28% said that their income is now lower (Figure 15). Their projections about their personal incomes in the future if the situation continues indicate greater loss if the situation continues. In particular, approximately 20% and 36% of the respondents indicated that their personal income is likely to evaporate altogether or to become lower respectively in the future. In this future scenario, just approximately 34.5% of the respondents are likely to experience no change in their income and approximately 1% will likely see an increase. Overall, and based on the respondents' reports, the coronavirus is likely to have a negative impact on the income of approximately 56% of the individuals. It is not possible to determine what might happen to those who refused to answer the question. If any of these individuals experience reduction in income, the overall percentage will need to be adjusted upwards.

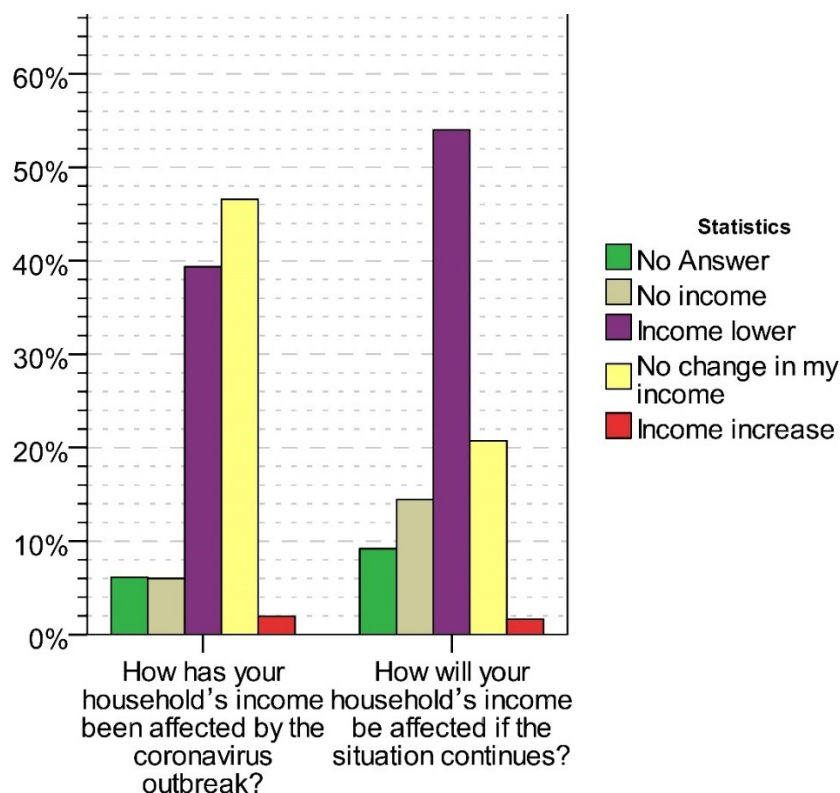


Figure 16 Impact on household income (reduced sample)

The question about household income was initially asked of all the respondents but was subsequently withdrawn from the survey as it became necessary to administer a shorter instrument in the telephone format (see methods section). Nevertheless, the reduced data set provides some preliminary insights on household income.

Nearly 40% of the respondents indicated that their household income became lower whereas 6% said that they now have no household income since the virus outbreak (Figure 16). This is a total of approximately 46% of households negatively affected in some of these ways with just approximately 46.5% of the households experiencing no change in income and 1% some increase. The respondents' projections for the future if the situation continues indicate that approximately 68% of the households will experience either reduced or complete loss of income (Figure 16).

Food security and the ability of individuals and families to remain economically solvent during the crisis have emerged as important issues in the public discourse and in the response to the COVID-19 pandemic. It was felt that these are also important issues in the Guyanese context and the survey instrument included several relevant items requesting yes/no responses. The responses to the items are summarised in Figure 17 which offers a comparison of the circumstances before and during the outbreak.

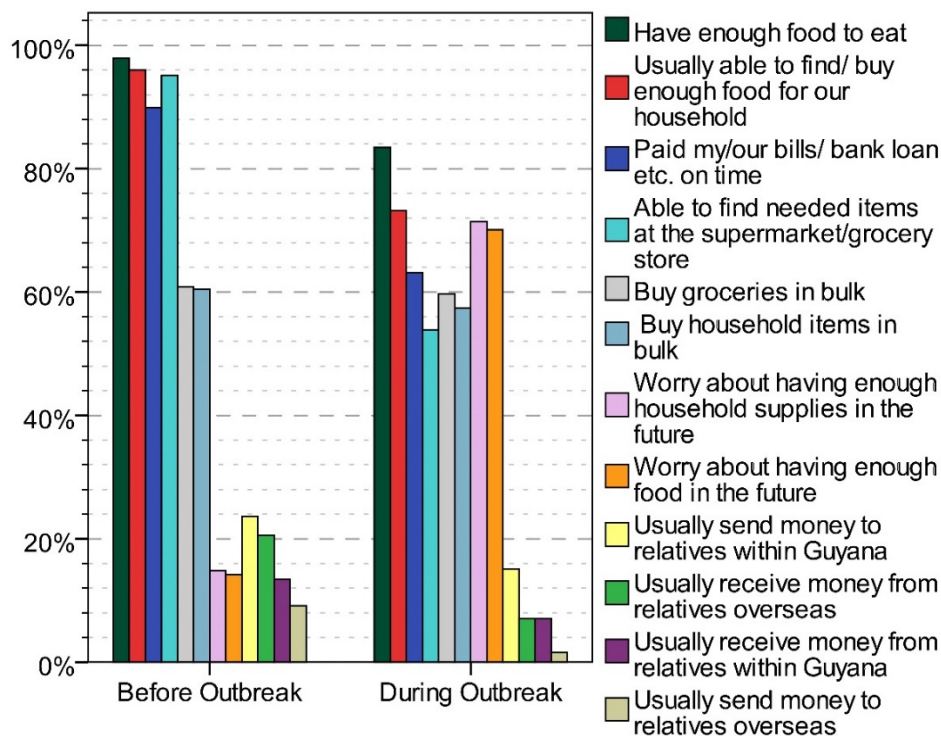


Figure 17 Household economic and food security

Except for two items, there are noticeable differences in the proportions of individuals who indicate yes in their responses to the items on economic and food security. The two items are *we buy groceries in bulk* and *we buy household items in bulk*. These were each answered in the affirmative by approximately 60% of the respondents in relation to the situation before the outbreak and by approximately 60% and approximately 57% respectively for the situation since the outbreak (Figure 17). Whereas bulk buying seems to have been part of the panic response in many countries, it appears to be less pronounced in Guyana with respect to household items. Perhaps bulk buying in Guyana or more accurately unusual demand might have been limited largely to sanitisation supplies such as hand sanitizers and other cleaners. Another consideration is that more people might have begun to purchase items to necessitate fewer trips to the shops and markets so that while they might not classify it as bulk buying, it still resulted in some extent of scarcity given the number of people who would have begun doing this concurrently.

With respect to some items, there were notable reductions since the outbreak in Guyana. These items relate mainly to food security. They include having enough to eat, being able to find or buy enough food for the household and being able to find needed items at the supermarket/grocery store. This group of items also includes being able to pay bills/ loans etc. on time. Between 89 and 98% of the individuals said yes to these items in their assessment of the situation before the outbreak whereas between 54 and 84% said yes in their assessment of the situation since the outbreak with having enough food to eat being the only item registering more than 80% endorsement.

There were also reductions in money transfer activities. There were reductions in the percentages of households that send money to relatives in the country, received money from relatives overseas, received money from relatives within the country and send money to relatives overseas (Figure 17). Nevertheless,

these changes were indicated by relatively small percentages of respondents overall (below 20% in most cases) to begin with.

Table 8 Profiles of economic impact segments

	Segment 1: Insulated	Segment 2: Worriers	Segment 3: Maximum Vulnerability	Segment 4: Panic Shoppers	Segment 5: Bulk Buyers
Cluster Size	38%	33%	15%	10%	5%
Indicators					
I/We paid my/our bills/ bank loan etc. on time					
Worse	0.17	0.25	0.58	0.33	0.13
Same	0.83	0.74	0.42	0.67	0.86
Better	0.01	0.00	0.00	0.00	0.01
I/We are usually able to find/ buy enough food for our household					
Worse	0.17	0.15	0.59	0.26	0.03
Same	0.83	0.85	0.41	0.74	0.97
Better	0.00	0.00	0.00	0.00	0.01
I/We are able to find needed items at the supermarket/grocery stores/ open market where we usually buy them					
Worse	0.31	0.35	0.83	0.52	0.28
Same	0.68	0.64	0.17	0.48	0.71
Better	0.01	0.01	0.00	0.00	0.01
I/We buy groceries in bulk					
Decreased	0.03	0.01	0.94	0.00	0.00
Same	0.96	0.98	0.06	0.06	0.09
Increased	0.00	0.01	0.00	0.94	0.91
I/We buy household items in bulk					
Decreased	0.05	0.02	0.86	0.00	0.00
Same	0.93	0.94	0.14	0.24	0.36
Increased	0.02	0.04	0.00	0.76	0.64
I/We worry about having enough food in the future					
Decreased	0.06	0.00	0.00	0.00	0.17
Same	0.83	0.00	0.21	0.03	0.79
Increased	0.11	1.00	0.79	0.97	0.04
I/We worry about having enough household supplies in the future					
Decreased	0.05	0.00	0.00	0.00	0.13
Same	0.81	0.01	0.26	0.05	0.82
Increased	0.14	0.99	0.74	0.95	0.05

BIC = 35644.85, L2 = 336.54, df = 357, p = 0.003, Entropy R-squared= 0.91

Segment 1: Insulated	Segment 2: Worriers	Segment 3: Maximum Vulnerability	Segment 4: Panic Shoppers	Segment 5: Bulk Buyers
-------------------------	------------------------	--	---------------------------------	------------------------------

The table shows the posterior probabilities of class/segment membership given the item/indicator category

The only items in relation to which there were increases in the percentage of people endorsing them relate to worry about having enough food and worry about having enough household supplies in the future (Figure 17). Hence, one of the things that the emergence of coronavirus has done is increase the worries about food security and household supplies.

Following inspection of the percentage distributions, segmentation of the data was done to determine what classes of households emerge based on their economic responses to COVID-19 and its early impacts on their economic situation and security. This was done using latent class cluster analysis with variables constructed to reflect whether things became worse or decreased (-1), remained the same (0) or better or increased (1) depending on the item (see method section).

In the analysis, five variables were dropped because they failed to discriminate among the segments meaning that the results for them were in the same category regardless of which class of household was considered (see method section). The items that contribute meaningfully to the analysis are presented in Table 8 along with their profiles per segment. Based on the pattern in the profile probabilities, names of the segments were coined to capture the essence of the segment and what makes it distinct from the others. The names given to the five segments are *insulated*, *worriers*, *maximum vulnerability*, *panic shoppers* and *bulk buyers*.

Insulated – This segment includes households that have experienced no shifts in relation to any of the issues since the emergence of the coronavirus in Guyana. Notably, this also includes a lack of change in relation to worrying about food security and household supplies. The name of this segment captures the reality that its members seem to be insulated from consequences of coronavirus. Their responses also do not convey any sense of panic or bulk buying because they can. This grouping accounts for approximately 38% of the households and is interestingly the largest single segment in the data.

Worriers – This segment is so named because there is an absence of changes except in relation to worry about food security and availability of household supplies. In both cases, the worry has increased. Whether this worry is irrational in the absence of negative experience or a testament to foresight and forward thinking cannot be determined from the data. This segment is the second largest and it accounts for approximately 33% of the households.

Maximum Vulnerability – The maximum vulnerability segment captures households that have had negative changes in relation to each issue. Since the emergence of COVID-19 in Guyana, their timeliness of paying bills has declined. They have been less able to find enough food and needed household items. They have reduced bulk buying of groceries and household items perhaps as a sign of economic impact and have experienced increased worries about food security and having enough household supplies. This segment which account for approximately 15% of the households therefore appear to be the most comprehensively affected economically so far by the coronavirus.

Panic Shoppers – The panic shoppers segment accounts for households that have experienced increased worries about food security and scarcity of household supplies and have stepped up bulk buying of both. The only other change that they have experienced is reduced availability of household supplies where they usually obtain them. Panic shoppers is perhaps a bit of a harsh label but they do seem to have responded to their own worrying and not finding household supplies where they would usually buy them by moving to bulk buying. This group accounts for 10% of the households.

Bulk Buyers – The bulk buyers segment captures households that are differentiated from the insulated category only by their move into bulk buying. They seem to have begun to do this just because they can especially given the absence of even increased worry about food security and availability of household supplies. Approximately 5% of the households are in the bulk buyers segment.

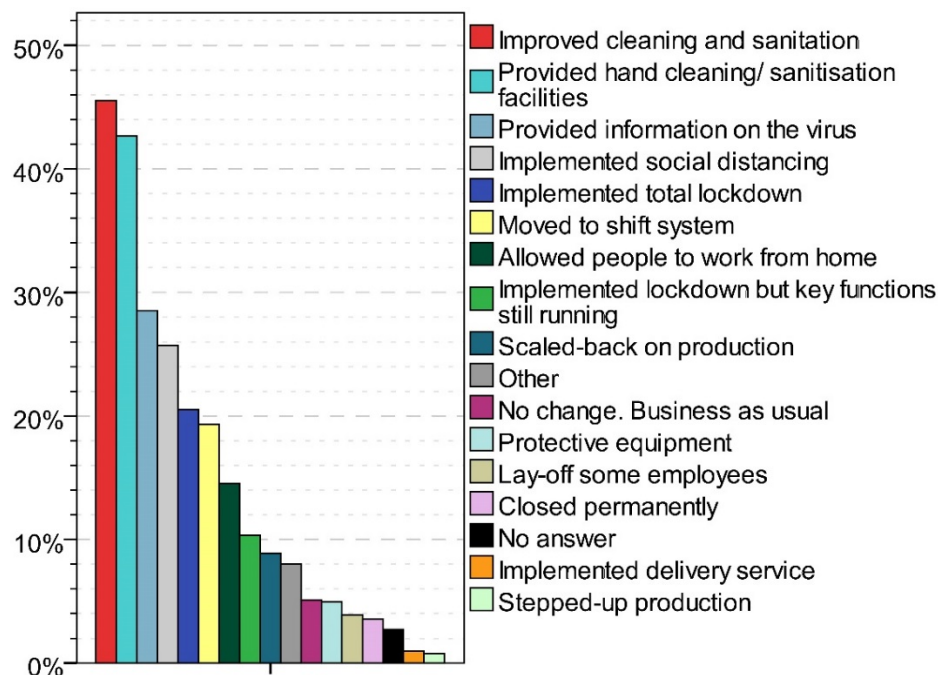


Figure 18 Employer response

3.3.1 Employers' Response

A final issue in this section is the response of employers to COVID-19 in Guyana. This matter is relevant to only those who are working for a salary, self-employed and owners of businesses (n=230 respondents).

Most respondents indicated that their employers (or themselves if they are business owners) improved cleaning and sanitation of the workplace (~46%) and provided cleaning and sanitisation facilities (such as soap, hand sanitiser etc.) (~43%) (see Figure 18). Fewer than 30% of the respondents identified any of the other actions. Between 20 and 30% said that their employers provided information on the coronavirus (~28.5%), implemented social distancing in the workplace (~26%) and implemented a total lockdown of the workplace (~21%), whereas between 10 and 20% said that their employers implemented a shift system (~19%), allowed people to work from home (~15%) and implemented a partial lockdown with key functions operational (~10%). No change in the workplace arrangements was identified by approximately

5% of the respondents and approximately the same percentage indicated that their employers provided personal protective equipment.

Apart from improved sanitation of the workplace and providing improved sanitisation facilities for workers to access, the response of employers does not appear to demonstrate strong commitment to fighting the coronavirus. At the time that the data were collected, state agencies had not implemented a full lockdown but had moved to a shift system at least in some public offices. The private sector might take cue from the actions of the state in relation to implementing more drastic preventive measures especially if they have consequences for economic activity and income generation.

3.4 Attitude Toward and Perceptions About COVID-19

The importance of understanding attitudes towards coronavirus is that it can provide insights about what people think of it and their chances of becoming infected and what they are willing to do or endure to aid the fight against the virus among other things. Such insights are important for targeting people with messages that might help them to understand important matters and perhaps adopt appropriate behaviours that would help combat the spread of the virus.

The attitude items presented to the respondents support three constructs (see method section). The three constructs measured are nonchalance, duty to humanity and optimism (see methods section for definitions).

Nonchalance has a construct mean of approximately 1.93 with a 95% confidence interval with limits 1.85 and 2.01 (Table 9). The interval therefore includes the scale value 2 (disagree) and is no different from this value in a statistical sense. On average therefore, the mean of the construct is low and while there may be individuals with strong manifestations of this attitude, the attitude itself is not strong at the aggregate level in the respondents as a collective. This is a positive outcome in relation to fighting COVID-19.

Table 9 Attitude to coronavirus

Constructs & Items	n	Mean	Std. Deviation	95% Confidence	
				Lower	Upper
Nonchalance	406	1.93	0.82	1.85	2.01
Duty to Humanity	405	4.51	0.49	4.46	4.56
Optimism	399	2.05	0.86	1.98	2.14
People who continue to go out as per normal are a danger to society while there is the coronavirus outbreak.	399	4.15	0.78	4.07	4.23
Simple home or herbal remedies will provide protection from the coronavirus	400	3.02	1.12	2.91	3.13
The coronavirus is a punishment from God.	389	2.37	1.11	2.26	2.48
The sun and temperature in Guyana will keep the coronavirus from spreading rapidly	388	2.61	1.07	2.50	2.72
<i>Response scale: 1 – disagree strongly, 2 – disagree, 3 – neither agree nor disagree, 4 – agree, 5 – agree strongly</i>					

Similar to the level of nonchalance is that of optimism about protection and imminent cure for COVID-19 infection. This attitude has an average of 2.05 and based on the confidence interval, this average is not distinguishable from the scale value 2 (disagree) (Table 9). A sense of optimism about being somehow protected and about an imminent cure might lead to complacency and defiance of rules that might be put in place to protect people and curb the spread of the virus. That the average is low is therefore a positive outcome for the fight against COVID-19 infection. Though there may be individuals with high levels of optimism, this attitude is not strong in the group as a collective at the aggregate level.

Duty to Humanity has an average of 4.51 on the five-point scale and the 95% confidence interval is entirely between the scale values 4 (agree) and 5 (agree strongly). This is a large mean in context and is indicative of a fairly strong sense of duty to do whatever is necessary to curb the spread of the virus. With this in mind it would seem that provision of information about the virus and what people need to do to protect themselves and others would be crucial to capitalising on this mindset of the people.

Although the averages for these constructs are reassuring, these are only the averages and there might be individuals whose attitude intensity deviates markedly from the averages. Such individuals can still undo the effort of many given how the coronavirus spreads and hence, the favourable means encountered do not mean that all is well.

In addition to the foregoing, there are four items that did not function as indicators of the constructs discussed earlier. These items (see Table 9) are analysed separately.

The average ratings provided by the respondent to the item stating that the people who continue to go out as per normal are a danger to society while there is the coronavirus is large. At the aggregate level, the respondents therefore indicated a relatively strong sense of support for the statement. This evidences an understanding of how the virus can be spread and some sense of support for social distancing though one cannot conclude that going out is the entirety of social distancing.

Overall, there is some ambivalence about the efficacy of simple home or herbal remedies in providing protection from the coronavirus. The average of the ratings for this item is 3.02 and the confidence interval for the average includes the scale value 3 (neither agree nor disagree). At the aggregate level therefore, people are not ready to either rely on or to dismiss non-conventional medicine as a means of fighting COVID-19.

The final two items in Table 9 both have means that lie between the scale values 2 (disagree) and 3 (Neither agree nor disagree). The belief that coronavirus is a punishment from god is likely linked to acceptance of infection as one's fate and may cause those who hold this view to potentially forego rules put in place and guidelines articulated to help prevent the spread of the virus. That the mean of this item is on the lower side is a good result. However, it is still difficult to ignore it given that it is not very low. Similarly, acceptance of the view that the sun and temperature in Guyana prevent the spread of the coronavirus is erroneous given the information currently available. Holding this view might result in individuals not taking enough precautions. Unambiguous information on this matter can go a long way in helping to deal with this misconception.

In order to obtain some insights into the extent to which individuals might have the three main attitudes, a structural equations model was estimated with age, sex, living area, education and employment status as explanatory variables (see Table 10). Of these variables, neither sex nor having an underlying condition that is a mortality risk in the case of coronavirus infection affects the attitudes towards the coronavirus. However, the other variables have effects depending on the attitude construct.

It is noteworthy that the variables include in the model explain relatively large proportions in the variances of the attitude factors and are hence important predictors beyond being merely significant. The R-squared values range from 27% to 44% for the three constructs (Table 10).

Age. Age has no effect on nonchalance and duty to humanity but it has a positive effect on optimism. In particular, older individuals have a stronger sense of optimism about Guyanese being protected from the coronavirus and that a cure will be developed quickly on average (Table 10).

Living Area. The living area is significantly related to both nonchalance and optimism. In particular, living in the coastal regions compared to the hinterland is linked to a stronger sense of both nonchalance and optimism (Table 10).

Table 10 Structural equations model for attitude to coronavirus

	Nonchalance	Duty to Humanity	Optimism
Age	0.12 (0.07)	-0.08 (0.07)	0.26* (0.06)
Sex (1 = male, 0 = female)	-0.05 (0.07)	-0.08 (0.07)	0.07 (0.06)
Living area (1 = Coast, 0 = Hinterland)	0.08* (0.04)	-0.05 (0.05)	0.15* (0.04)
Underlying condition (1 = yes, 0 = no)	-0.08 (0.06)	-0.01 (0.07)	-0.06 (0.06)
Education (baseline=secondary)			
Primary education (1 = yes, 0 = no)	0.30* (0.08)	-0.19* (0.09)	0.35* (0.07)
University education (1 = yes, 0 = no)	-0.32* (0.07)	0.39* (0.07)	-0.29* (0.05)
Employed (1 = yes, 0 = no)	0.03 (0.07)	0.03 (0.07)	-0.13* (0.06)
R-squared	0.30	0.27	0.44

* significant at the 5% level. Table shows standardised values.

RMSEA = 0.04, CFI = 0.95, SRMR = 0.03

Education. Education is significantly related to each of the constructs. Compared to secondary schooling, university education is associated with lower levels of nonchalance and optimism (Table 10). In contrast, compared to secondary education, primary education is associated with higher levels of both optimism and nonchalance. Education therefore seems to have a linear effect on these two constructs with improved education resulting progressively improved outlook in relation to both. Education also appears to have a linear effect on duty to humanity with improved education leading to a progressively stronger sense of duty. It appears that education can make a difference in the fight against the coronavirus based on the attendant attitudes.

Employment. Employment affects only optimism with those who are unemployed having a stronger sense of optimism about Guyanese being protected and about the imminent development of a cure for the coronavirus (Table 10). It is not immediately clear why this result has emerged.

The emergence of the coronavirus around the world has put a spotlight on the capacity of healthcare systems to deal with the number of patients and to provide appropriate care with attention to safety. It has thrust quarantining and isolation at home of people suspected to be ill into the forefront of discussions about how to respond. It has also led to the closure of schools and to parents having to home-school in the interim and look after their children throughout the day. These have all become salient issues in the Guyanese context and in closing out this section of the report, some attention is focused on responses obtained in relation to these matters.

The first three items in Table 11 focus on elements of home quarantining. Item 1 focuses on access to friends and family network which will ensure that people quarantined at home do not run out of food whereas item 2 addresses feelings of loneliness during quarantine and item 3 worries about boredom and not having enough to do. The mean of the first item exceed 3 (neither agree nor disagree) and has a 95% confidence interval that lies between 3 and 4 (agree) whereas the means of items 2 and 3 are lower with confidence intervals that lie between 2 (disagree) and 3 (neither agree nor disagree). The latter two items therefore present an optimistic view about being able to avoid loneliness and boredom in the event that a person is quarantined at home whereas the first item suggests the existence of relatively strong social networks that will ensure food security. These results support the conclusion that people feel that they will be able to cope with being quarantined at home.

Table 11 Coronavirus concerns

	n	Mean	Std. Deviation	95% Confidence Lower Upper	
1. If I have to be quarantined at home, I have people who can ensure that I have food and other supplies.	399	3.72	1.04	3.62	3.82
2. If I have to be quarantined at home, I would worry about being lonely	396	2.50	1.08	2.39	2.61
3. If I have to be quarantined at home, I worry about not having enough to do	396	2.51	1.07	2.40	2.62
4. Our health system is equipped to deal with the coronavirus	395	2.17	1.14	2.06	2.28
5. Schools should be reopened to avoid impacting negatively on the education of children	395	2.00	0.96	1.91	2.09
6. I have enough activities to keep children in my household occupied during the school closure	203	3.97	0.68	3.88	4.06
7. I worry about the safety of children in my household while they are at home from	195	2.94	1.21	2.77	3.11

Response scale: 1 – disagree strongly, 2 – disagree, 3 – neither agree nor disagree, 4 – agree, 5 – agree strongly

On the matter of the capacity of the healthcare system to deal with the coronavirus, the mean of the responses suggests an overall pessimistic view on average (see Table 11). Though there is no strong disagreement with its capacity to deal with the coronavirus, there is clearly no agreement on average nor even a more neutral average position. Overall, the people are not confident in the capacity of the healthcare system to deal with the coronavirus. It would therefore be to the benefit of public confidence for the system to handle cases in a transparent manner and to ensure that people understand the plans and provisions for addressing the virus. This is one way of potentially building public confidence and reassuring the public if indeed the health system is better equipped than it is believed to be.

There is a clear disagreement on average with the notion that schools should be reopened to avoid negative impacts on the education of children amidst the coronavirus outbreak. This is gleaned from the result that the mean value is 2 with a 95% confidence interval that includes the scale value 2 (disagree) (Table 11). This move by the Ministry to close schools therefore has wide support.

Against the backdrop of the closure of the schools, the respondents were asked, where relevant, about the extent to which they agree or disagree that they have enough activities to keep the children occupied at home and that they worry about the safety of children at home during this time. The latter issue was premised on the assumption that since neither the public service nor the private sector was shutdown, many parents will still be at work while their children are at home. The average response to having enough activities to keep children occupied is reassuring as it indicates clear agreement with the 95% confidence interval for the mean capturing the scale value 4 (agree). The average rating for worrying about the safety of children at home is less so given that the confidence interval includes the scale value 3 (neither agree nor disagree).

3.5 Lifestyle and Social Activities

Around the world, social distancing seems to be one of the key ways of combatting COVID-19 by slowing its spread and reducing the problem of overwhelming the capacity of the healthcare systems. This approach involves avoiding human contact and physical proximity to others except for essential matters. Social distancing implies an overall decline in social activities and stoppage of those that are nonessential. There are therefore lifestyle changes involved.

In the survey, the respondents were asked about ten activities and were required to indicate whether since the emergence of COVID-19 in the country, their level of engagement in each had stopped, been reduced, remained the same or increased. The respondents were asked about themselves as individuals and about their households overall. In the group of activities, drink alcohol might appear to be the odd one in so far as it does not immediately imply contact or proximity to other people.

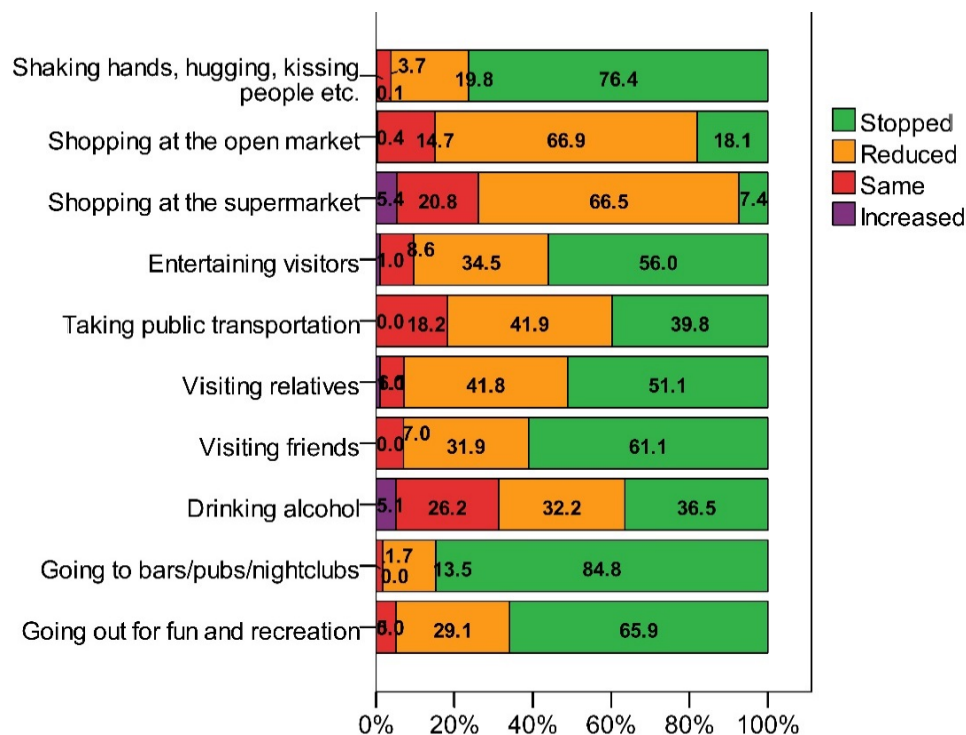


Figure 19 Individual social response to COVID-19

Perhaps one of the first things to notice in the chart showing the responses about their personal activities is that there have been reductions in engagement in all the activities (see Figure 19). The categories indicating that the level of the activity either remained the same or increased account for less than 30% of the respondents in each case. Furthermore, it is only for drinking alcohol that the combination of the level remaining the same and the level increasing account for more than 30% of the responses (in this case 31.3%).

The most drastic changes in activities on average are for going out to bars/pubs/nightclubs; shaking hands, hugging, kissing etc.; and going out for fun and recreation. Approximately 84.8%, 74.8% and 65.9% of the respondents indicated that they have stopped these kinds of activities since the emergence of COVID-19 (Figure 19). There have also been marked reductions in the frequency of shopping at the open market

(~66.9%) and at the supermarket (~66.55). It is unlikely that these activities can be stopped given that people will continue to need food, hence, that there have been reductions in the frequency is a good sign.

More than half of the respondents (between 51.1% and 61.1%) have stopped visiting friends, entertaining visitors and visiting relatives (Figure 19). In addition, between 31.9% and 41.9% have indicated reductions in these activities. While these are good results, there are still many who have not stopped and reducing the frequency does not necessarily guarantee protection of either the people visited or entertained or the persons doing it.

People have also begun to reduce or stop taking public transportation. Approximately 39.8% indicated that they have stopped whereas approximately 41.9% have indicated a reduction in the frequency and 18.2% indicated that the level is the same (Figure 19). It is likely that many people are unable to avoid taking public transportation if they have to move from one place to another. For these people, this activity might end or become reduced contingent upon others such as the need to go to work and perhaps also stopping social activities such as visiting friends.

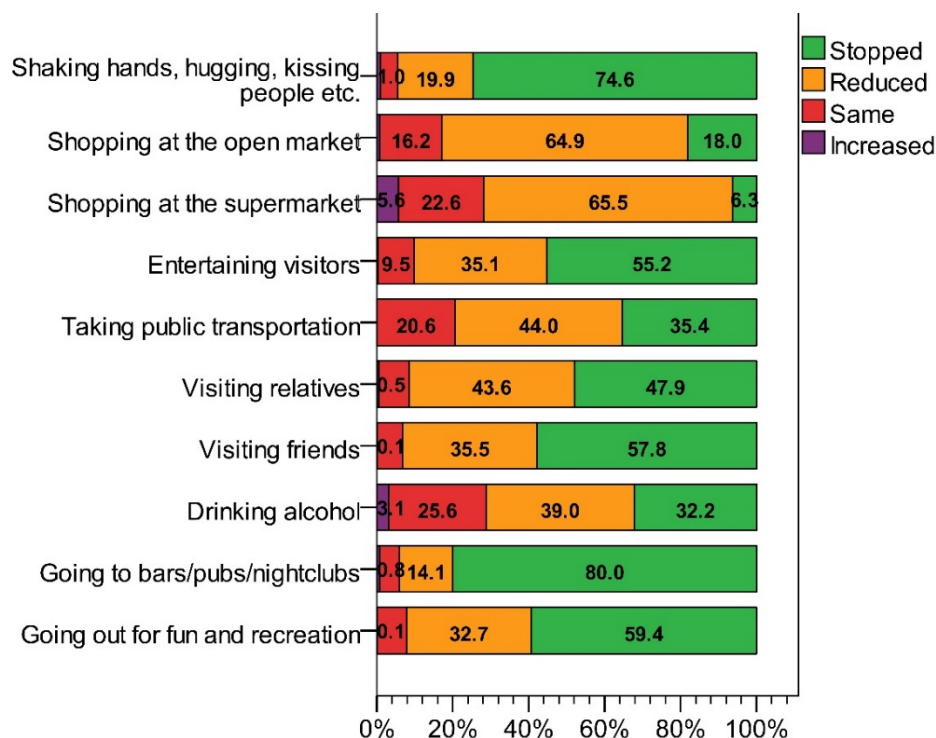


Figure 20 Household social response to COVID-19

The responses provided in relation to the social activities of the other members of the household overall show a similar pattern to that of the results for the individual respondent. However, in each case, the outlook is a bit less favourable. It is noticeable that the category for things remaining the same is slightly increased relative to the individual expectation for drinking alcohol. In addition to this, the percentages in the category of reduced are slightly larger for each item except shopping at the open market and shopping at the supermarket whereas in each case, the corresponding percentages are lower for having stopped entirely for the other members of the household compared to the respondent (Figure 20). The

interpretations provided for the individual are therefore relevant for the household with the understanding that the outlook is somewhat better from the perspective of the individual than for the household overall.

Table 12 Profiles for lifestyle and social activities segments

	Segment 1: Strict Social Distancer	Segment 2: Mild Social Distancer	Segment 3: Social Non- Distancer
Cluster Size	0.51	0.39	0.10
Indicators			
<i>Going out for fun and recreation</i>			
Stopped	0.86	0.48	0.05
Reduced	0.14	0.47	0.49
Same	0.00	0.05	0.46
<i>Visiting friends</i>			
Stopped	1.00	0.21	0.00
Reduced	0.00	0.77	0.21
Same	0.00	0.02	0.79
<i>Visiting relatives</i>			
Stopped	0.83	0.19	0.03
Reduced	0.17	0.71	0.56
Same	0.00	0.10	0.42
<i>Entertaining visitors</i>			
Stopped	0.76	0.40	0.01
Reduced	0.23	0.52	0.25
Same	0.01	0.08	0.74
<i>Shopping at the supermarket</i>			
Stopped	0.10	0.05	0.01
Reduced	0.71	0.66	0.40
Same	0.19	0.29	0.59
<i>Shopping at the open market</i>			
Stopped	0.24	0.14	0.02
Reduced	0.68	0.71	0.44
Same	0.08	0.15	0.54
<i>Shaking hands, hugging, kissing people etc.</i>			
Stopped	0.92	0.67	0.38
Reduced	0.08	0.28	0.45
Same	0.00	0.05	0.17

BIC =3868.69, $L^2 = 1165.68$, $df = 373$, $p = 2 \times 10^{-82}$, Entropy R-squared = 0.77

The table shows the posterior probabilities of class/segment membership given the item/indicator category

Segmentation of the respondents based on their response to the lifestyle and social activities items (see item description in the method section) was done using latent class cluster analysis and this resulted in three salient classes that appear to be ordinal based on the extent of social distancing adopted by the individual since the emergence of COVID-19 in the country (Table 12). This was determined from the posterior profile probabilities which essentially indicate the probability of the item/indicator category given class membership. The classes were named strict social distancer, mild social distancer and social non-distancer.

Strict Social Distancer – This segment of individuals captures those who have stopped all in-person socialising and physical contact and reduced trips to the market and supermarket. The latter two are essential activities given the necessity of obtaining food. Of the list presented to the respondents, these are the only activities that they have not stopped entirely for this group of people. More than half of the individuals (~51%) are strict social distancers.

Mild Social Distancer – This segment captures those who have reduced all of the activities and have in addition stopped physical contact in the form of shaking hands, hugging etc. However, whereas some mild social distancers have stopped going out for fun altogether many have only reduced such outings since the emergence of the coronavirus in Guyana. The mild social distancer segment accounts for approximately 39% of the individuals.

Social Non-Distancer – This is a segment of people who have not made substantial lifestyle changes in response to COVID-19 in the country. They continue to visit friends, entertain visitors, make trips to the markets as frequently as they did before the arrival of the coronavirus. Nevertheless, as a group, they have at least reduced physical contact with some stopping this entirely. Social non-distancers have also reduced the frequency of visiting relatives but as a group they are ambivalent about going out for fun with some tendency towards reduction with many still going out. It may be that some extent of choice was taken from the social non-distancer by people within their networks who have adopted social distancing for themselves. This might explain the results for going out for fun, visiting family and perhaps even physical contact in the form of shaking hand, hugging etc. Approximately 10% of the individuals fall into this segment of social non-distancer. Individuals in this segment would be of great public health concern in the context of the spread of the coronavirus.

To obtain some further insights into the composition of the segments, a logistic regression model was estimated with the segments as the dependent variable. To do this, the second and third segments were combined into one to produce a binary dependent variable indicating strict social distancers versus everyone else. This recoding of the data and choice of model were important due to the small size of the third segment.

The model results indicate that sex, education and employment are significant predictors of classification into the segments but that age and living area are not (Table 13).

Sex. Males are less likely than females to be strict social distancers. Transforming the log-odds ratio into the odds ratio scale indicates that the odds are that a female is a strict social distancer versus something

less stringent are 1.63 times the corresponding odds for males². Whether this has to do with traditional roles or the attitude of men versus women in general is not clear.

Table 13 Logit model for lifestyle and social activities segments

Variable	Coefficient
Age	0.00 (0.01)
Sex (1 = male, 0 = female)	-0.49* (0.22)
Living area (1 = Coast, 0 = Hinterland)	0.47 (0.37)
Education (baseline=secondary)	
Primary education (1 = yes, 0 = no)	-0.68* (0.29)
University education (1 = yes, 0 = no)	0.20 (0.24)
Employed (1 = yes, 0 = no)	-0.65* (0.24)
Intercept	0.42 (0.52)

* significant at the 5% level. Dependent variable: 1 – strict social distancer, 0 – others

Chi-square = 27.39, df = 6, p=0.00. Pseudo-R-squared (cox & Snell) = 0.07

Education. There is no distinction between secondary and university education in relation to the impact on the social distancing categorisation. However, those with primary education compared to those with secondary education are less likely to be among the strict social distancers (Table 13). Furthermore, the odds of being a strict social distancer versus anything else for those who completed secondary education are 1.97 times that for those who completed up to primary education whereas the corresponding odds for those who completed university are 2.41 times that for those who completed primary education. It appears that education can provide protection from infection perhaps by facilitating enlightenment or access to and understanding of the information about the virus.

Employment. People who are employed are less likely than those who are not to be strict social distancers. This result is interesting on its own and it points to the reality that the public sector was at the time of data collection still operational as was the private sector. People who could not utilise alternatives and working from home strategy were still physically going to work because they needed to do so. If the only goal and thing of necessity were to avoid proximity with others in an attempt to stall the spread of the coronavirus, unemployment would be beneficial. The odds of being a strict social distancer versus something else for the unemployed are 1.92 times that for those who are employed.

² The odds ratio is 0.613 for males and 1/0.613 =1.63 for females versus males.

3.6 Health and Safety Response

Health and safety response refer to preventative actions that people can take that are not related to social activities. These are actions that improve sanitation, hygiene, health and exposure in general. The respondents were asked to provide yes/no responses to nine items on what happened since the emergence of the coronavirus in Guyana. Furthermore, they were asked to answer for themselves as individuals and separately for their households in general (or on average).

From the perspective of the individual, large majorities indicated yes in response to the items focusing on sanitisation including washing hands. In particular, between 81.2% and 95.4% of the respondents said that they used hand sanitisers more frequently, cleaned/ sanitise the house more frequently and washed their hands more frequently (Figure 21). In addition to this, a large majority (94.1%) said that they stayed at home unless going out was absolutely necessary. These are direct actions by the individuals to prevent infection and given the results, it seems that people in general have been paying heed to some steps that they should take to prevent infection.

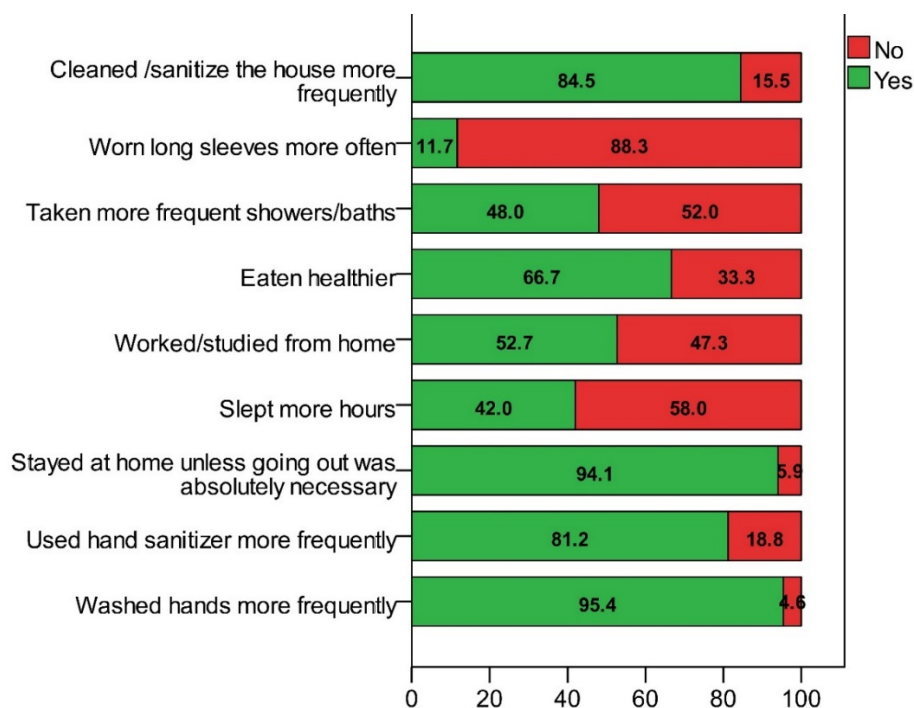


Figure 21 Individual health and safety response to COVID-19

There is a flip in the direction of the responses when it comes to wearing long sleeves. Approximately 88.3% of the respondents said that they have not begun to wear long sleeves more frequently since the emergence of the coronavirus in Guyana. Though this is sometimes recommended as a means of avoiding having the virus rest on the skin and potentially transferred to the respiratory system subsequently, it does not seem to have taken hold as an approach to fighting COVID-19.

There is an overall greater mixture of yes/no responses to the remaining items with the percentages ranging between 33.3 and 66.7 for taking more frequent showers, eating healthier, working or studying from home, and sleeping more hours. The individual might have less control over where they work so this

might not be directly attributable to their choices but they would have more control over the other matters.

The pattern in the responses for the household in general (or on average) is similar to the responses for the individual. However, the respondent appears to have provided a somewhat more stringent assessment of the other household members with the result that the percentages of yes responses are consistently somewhat lower than their counterparts among the responses about the individual respondents.

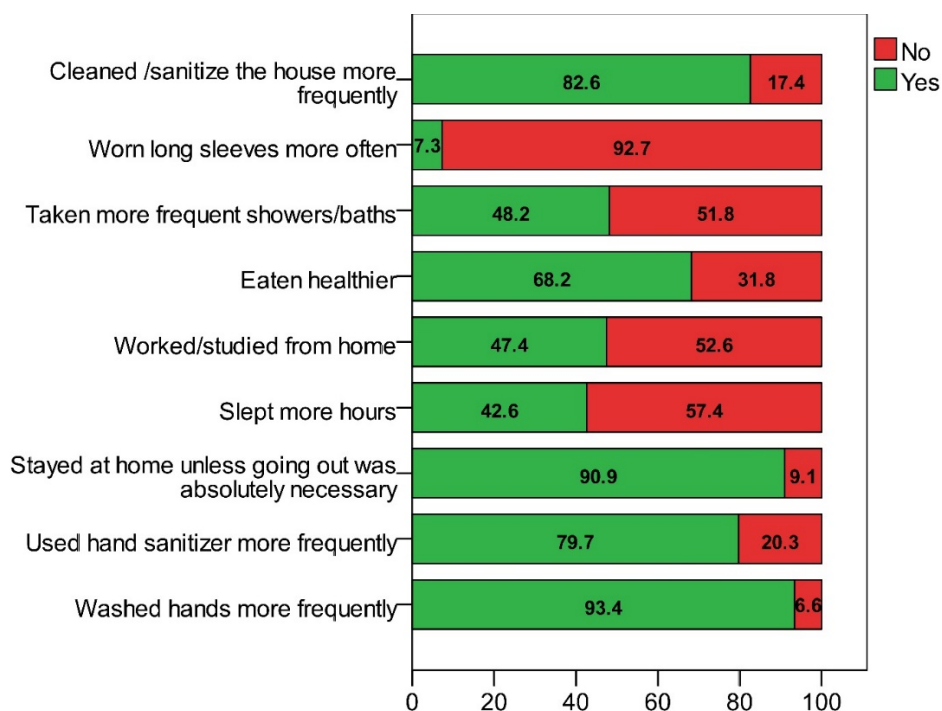


Figure 22 Household health and safety response to COVID-19

Overall, for both the respondent and for the household in general, there seems to be a heightened sense of importance of cleanliness and sanitation except perhaps with respect to taking showers which many be proceeding as it did prior to COVID-19. There is also heightened sense of the importance of staying at home unless it cannot be avoided. Concurrently, there is less emphasis on improving health through actions like sleeping more and eating healthier.

4 References

- Byrne, B. M. (1989). *Structural equation modeling with LISREL, PRELIS and SIMPLIS: Basic concepts, applications and programming*. Hillsdale, NJ: Erlbaum.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: Multidisciplinary Journal*, 6, 1-55.
- Magidson, J., & Vermunt, J. K. (2004). Latent class models. In D. Kaplan (Ed.), *The Sage handbook of quantitative methodology for the social sciences* (pp. 175-198). Thousands Oakes: Sage.

5 Annex: Survey Questionnaire

Please see the attached document for the survey questionnaire. Alternatively, the survey questionnaire will be made available on www.theconsultancygroupinc.com/covid.html

