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Jamaicans' Views on Trust, COVID-19 Vaccination, COVID-19 Campaign, Matters on the Vaccines, and the role of distrust in vaccine hesitancy

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Abstract

This study was carried out to determine whether trust influences the COVID-19 vaccination choice of Jamaicans. The specific objectives were:to find out the role of the government to the citizens on the issue of vaccination, to determine the respondent's preferences on the choice of vaccine, and to determine the level of trust among the respondents. A quantitative research design was used to gather data among 1071 respondentsaged 18 years and older sampled from a population of 2,734,092 Jamaicans. Data collection was done using a standardized web-based survey. A convenient sampling procedure was used. The Statistical Packages for the Social Sciences (SPSS) was used to analyze and interpret the data. Of the sampled respondents, 19.7% indicated that they trust the Jamaican Government, 20.3% stated that the government has Jamaicans best interest at heart, 51.5% believedthat vaccination Campaign is educating and encouraging, 61.4% stated vaccinate Campaign is forceful, and 33.5% believed that the government listens to people's concerns, and 53.2% trust other people. Of the 53.2% of respondents who have taken at least a dose of the COVID-19 vaccine, 5.04% had low trust;11.39%had moderate trust; 27.17% had high and 9.62%had very high trust. The majority of the respondents (51.8%) believe there is no harmful agenda behind promoting the COVID-19 vaccines. Furthermore, 73.9% of those who indicated that they trust the government have been vaccinated compared to 41.3% of those who do not trust the government ($\chi^2(2) = 60.639$; $P<0.001$). Based on the findings presented from this research, it can be concluded that distrust in the government as well as for other people is adversely influencing the COVID-19 vaccination of Jamaicans.

Keywords: COVID-19, vaccination, trust, government, Jamaica, vaccine hesitancy

Introduction

It was Fukuyama who postulated, "Trust is the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of that community" (1996). According to LeBlanc et al. (2019), interpersonal trust is confidence in another person and willingness to be vulnerable to the individual (see also, Bourne, 2010a; Bourne, Francis, & Kerr-Campbell, 2010). For many years it has been a constant battle for politicians to gain the trust of their constituents. According to an article published in The Gleaner on December 20, 2020, titled "Bridging or widening the trust deficit", the last election held in Jamaica, saw the lowest turnout in electorates in over 70 years. The rationale forwarded for the low political participations in general elections is distrust in government (Bourne, Beckford, & Duncan, 2010; Bourne, 2010b). Powell, Bourne, & Waller (2007) conducted a national probability cross-sectional survey and found that 8% of Jamaicans indicated that they trust the government (see also, Bourne, 2010b). An important question for policy makers is what accounts for the high COVID-19 vaccine hesitancy in Jamaica?

The COVID-19 virus marching unrestrainedly across the world arrived at Jamaica's doors in March 2020. Today, many people are longing for a sense of normalcy and are ready to leave COVID-19 behind. This now brings about the discussion of vaccination, which is being encouraged worldwide. The Centers for Disease Control and Prevention (CDC) (2021) stated that once an individual is fully vaccinated, that person will be able to resume activities that were usually done before the pandemic. The World Health Organization (2021), defines vaccines as a simple, safe, and effective way of protecting individuals against harmful diseases before they come into contact with the disease. Vaccines are some of the most efficient public health tools for promoting health and reducing the burden of infectious diseases (WHO, 2021). There are strict rules and regulations in place to help ensure the safety of all COVID-19 vaccines. Before receiving validation from WHO and national regulatory agencies, COVID-19 vaccines must undergo rigorous testing in clinical trials to prove that they meet internationally agreed benchmarks for safety and efficacy (WHO, 2021). (Which vaccine was first accepted by World Health Organization (WHO) to be distributed?) Being fully vaccinated and wearing a mask maximizes one’s protection from other variants such as the Delta/Mu and possibly spreading it to others. ("COVID-19 Vaccination", 2021).

In Jamaica, several COVID-19 vaccines are available for persons aged twelve (12) years and over. COVID –19 vaccines that are currently available to Jamaicans are AstraZeneca, Pfizer-BioNTech, and the Johnson and Johnson. Statistics revealed that as of December 8, 2021, 17.77% (n=528,379) of Jamaicans have been fully vaccinated against the COVID-19 virus and 23.15% (n=688,287) have had at least one dose of the COVID-19 vaccine (COVIDvax.live, 2021). Although many Jamaicans would have been vaccinated against several childhood diseases; many remain skeptical and hesitant about taking the COVID-19 vaccines. Numerous persons have concerns related to the efficacy of the vaccines and the

long-term outcome of the said vaccines. A national probability study conducted in 2007 found that 8% of Jamaicans trust the Jamaican government (Powell, Bourne, & Waller, 2007). Is the high rate of distrust for government influencing Jamaicans' decision to be vaccinated against the COVID-19 virus? De Freitas, Basedeo, & Wang found that "Increasing levels of trust in the medical sector were associated with decreasing levels of believing misinformation" (De Freitas, Basedeo, & Wang (2021, p. 100051), which supports the role of trust in the COVID-19 vaccination apparatus. This begs the question, is trust (or distrust) affecting the COVID-19 vaccine hesitancy in Jamaica?This research aims to evaluate whether trust is influencing the COVID-19 vaccine hesitancy among Jamaicans.

Literature Review & Theoretical Framework

The thought of vaccination has been a no-brainer for years. The normalcy of the vaccination programme has been widespread throughout the years, and the lack of immunization/vaccination against diseases brings more worry than comfort. However, that all has seemingly changed with the arrival of the coronavirus (COVID-19) vaccine. Individuals now seem to question 'how is there a vaccine created so quickly against COVID-19?', rather than 'where can I get immunized?' Amidst all this chaos lies the question 'Can this vaccine be trusted?' a war between trust and distrust. "The most important ingredient in all vaccines is trust" (Harvard T.H. Chan, School of Public Health, 2020).

Robinson (2021) of BBC Future is convinced that the COVID-19 vaccines are saving lives. Statistics from a study in the United Kingdom (UK) show that more than 200,000 people that got vaccinated developed antibodies against the virus within two weeks of their second dose. Though this information is widely available, vaccine hesitancy still lingers among the general population. The 5Cs model is a well-known model used to analyze vaccine hesitancy: confidence (trust in the vaccine), complacency (health risk), the calculation (research), constraints or convenience (accessibility to the vaccine), and collective responsibility (willingness to protect others). Examining the complexity of vaccine hesitancy is crucial in understanding and gaining the trust of the public (Robinson 2021).

Though Robinson (2021) retains high regard for the COVID-19 vaccines, Piltch-Loeb and company (2021) say that hesitancy towards the COVID-19 vaccine remains high in the US population. However, there is hope for decreased hesitancy among those who used traditional channels of information, especially National TV, National newspapers, and local newspapers. With this information in mind, during a Cabinet meeting with the Jamaican Government on February 03, 2021, it was promised that the Ministry of Health and Wellness would have intensified the public education program ahead of introducing the first set of COVID-19 vaccines (Linton, 2021). Dr. Tufton, the Minister of Health and Wellness, expressed that, "health promotion and communications machinery will be increased to further promote trust towards the vaccine, eliminate myths and misinformation, supply truthful and accurate information about vaccination and gain public trust in the vaccination strategies to be employed." (Linton, 2021).

Jamaica was the first country in the Caribbean to receive COVID-19 vaccines through the COVAX facility (PAHO 2021). A total of 14,400 doses of COVID-19 vaccines came to Jamaica through the COVAX Facility on Monday, March 8, 2021 (Morris, 2021). In an interview, Dr. Christopher Tufton mentioned "Vaccination has proven an undeniable success in the public health toolkit to reduce the burden of infectious disease, and vaccines under the COVAX Facility represents a key part of our response to this global pandemic." To date (December 1, 2021), according to Our World in Data (2021), 42.7% (3.33Bn) of the world's population is fully vaccinated.As of December1, 2021 only 17.2% (509,116) of Jamaica's population is fully vaccinated, with 667,252 (22.5%) receiving at least one (1) dose of the vaccine. An important fact is the researchers are not cognizant of Jamaican population used for the published figure previously stated. However, to some, these numbers would mean that vaccination rates are high in Jamaica, however, others know better. This begs the question, why are vaccination rates not higher if the vaccine is as effective as they presume it to be?

OECD (2021) emphasizes that trust in vaccines is vital and critically dependent on the ability of the governments to communicate the benefits of vaccination, as well as deliver the vaccines safely and effectively. The development of an effective vaccine is one issue, but gaining and maintaining public trust in COVID-19 vaccines and vaccination is another issue. Governments must be able to communicate and successfully deliver a vaccination programme that is dependent on the 5Cs model of combating vaccine hesitancy. The OECD Trust Framework (2021) speaks to five main policy dimensions (responsiveness, reliability, integrity, openness, and fairness) that help government establishments to gain trust. Government competence and values are vital factors to gaining the public's trust.

WHO (2017) speculates that political misuse of an event to strengthen political profiles, mass immunization campaigns, a political crisis, civil unrest, or otherwise unstable situation, are all factors that may intensify distrust in vaccines and vaccination. WHO (2017) also mentioned that communicating about vaccination during a crisis must be done based on the understanding of certain factors that influence vaccine decision-making, including risk perception, attitudes, self-efficacy, barriers, and motivators such as social and cultural norms, values, and traditions.

Taylor and company (2020) speculated that vaccination hesitancy is associated with negative attitudes towards the COVID-19 vaccine, including concerns regarding safety and efficacy, along with doubts about the necessity for vaccination. Additionally, emphasis was placed on ratifying anti-vaccination beliefs identified within multiple investigations. The research recognized that mistrust of health authorities delays vaccination uptake.

Though there has been multiple published research regarding vaccine hesitancy and gaining public trust, there are still questions regardingwhether governments are using adequate resources to address the same, as well as displaying adequate attitude towards their citizen's hesitancy. Prime Minister Andrew Holness spoke at the handover ceremony of a genome sequencing machine to the National Centre at the University Hospital of the West Indies on October 23, 2021, where he made mention of the hold on public amenities in some spaces until COVID-19 vaccination rates increased (Francis, 2021). Mr. Holness explained that the

Ministry of Health and Wellness was forced to dump some 60,000 doses due to “ignorant and stupid people”. He also urged the citizens to make use of the AstraZeneca vaccine and not to “sit at home and listen to nonsense and fool-fool people” (Francis, 2021). Another question also stands, how much more hesitancy can the government take?

Theoretical Framework

The Socio-ecological model seeks to explain how children (and humans at large) are impacted by their social environments and emphasizes the importance of studying children in multiple environments, namely ecological systems (Bronfenbrenner 1979). Bronfenbrenner emphasized the five (5) ecosystems that children inevitably interact with and how they influence each other. These include the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Bronfenbrenner, 1979). The microsystem is your small and intimate environment; it helps to develop personal traits, characteristics, and skills. The mesosystem involves a system of microsystems and thus includes the relationship between home and school, peer group and family, and family and community. The system helps to explain how one area of the child's life inadvertently influences the other area. The exosystem of the model concerns the connection that possibly exists between two or more settings and how the development of children is affected indirectly. The macrosystem is composed of cultural patterns and values, beliefs and ideas, even political and economic systems (Bronfenbrenner, 1979). While, the chronosystem includes the influence that change, and consistency have on children’s environments. This may include changes in family structure, address, parent’s employment status, and even the change in the economy.

This model, when applied, will help to understand what factors and ecosystems are most influential to an individual’s decision to take the COVID-19 vaccine. It will also aid in answering the research questions: 1) has the government’s approach to encouraging COVID-19 vaccination manifested into fear and suspicion towards vaccination in Jamaica? And 2) do the current methods of encouraging COVID-19 vaccination by the government give Jamaicans confidence and willingness to be vaccinated? This theory when applied, will also further facilitate which ecosystem has the most influence on individual choices and why.

Material & Method

This is a descriptive web-based cross sectional research design. The method was used to examine selected variables such as trust, COVID 19 vaccination, and issues relating to COVID-19. Convenience sampling (non-probability sampling) method was used to collect data from Jamaicans 18 years and older by way of a standardized questionnaires. According to Statistical Institute of Jamaica (STATIN) and the latest census done in Jamaica (July 2019), approximately 2,734,092 people are living in Jamaica. Using a 95% confidence interval and a 5% margin of error, the sample size was 1071 individuals. The targeted sample of 1,071 Jamaicans was attained by way of a standardized web-based survey through WhatsApp, Other Social Media Platform (Facebook, etc), and Face-to-Face interactions across the fourteen parishes of Jamaica. This was accomplished through a trained research team who was assigned to collect data by people who lived in selected parishes. Due to the

COVID-19 pandemic health precautions and restrictions, this method was deemed to be more suitable as opposed to conducting a face-to-face interview. The collection of data was conducted between September 10, 2021, and November 20, 2021.

The questionnaire consisted of twenty-seven (27) questions. Three (3) of which collect demographic data, nine-teen (19) for gathering information towards the objective, and five (5) questions from an interpersonal trust scale. On the other hand, a single question was to to ascertain Jamaicans' trust for the Jamaican government (i.e., Do you trust the government? The options of choice were 1) No, 2) Not sure, and 3) Yes). Interpersonal trust was constructed from a five item likert scale. Exploratory factor analysis was used to confirm the suitability and appropriateness of the five item before the variable was constructed (see Appendix A).

Participants were instructed on the nature and purpose of the study. For this survey, confidentiality and anonymity were assured and maintained throughout the research by excluding all personal identifiers. The data was analyzed and interpreted using the Statistical Packages for the Social Sciences (SPSS). The statistical tools utilized were 1) percentages, 2) cross-tabulations, and 3) tables and graphs. To determine the statistical significance of interpersonal trust on the COVID-19 vaccination,and ivariate analysis (chi-square) were used examine selected issues. Data was analyzed using percentages and frequencies as well as cross tabulations. A p-value of 5% (0.05) two-tailed test was used to determine the level of statistical significance.

Results

Findings

Table 1: Demographic Characteristics of the Sampled Respondents, n=1071. 56% of the respondents were females (n=600); while the minor were males 44% (n=471). 41% (n=439) of the respondents were between 18-27 years of age, while the least 4.5% (n=48) were from those aged 68 years and older.

Table 1.Demographic Characteristics, n=1071

Details	**% (n)**
Gender	
Female	56.0 (600)
Male	44.0 (471)
Age Cohort	
18-27 years	41.0 (439)
28-37 years	20.9 (224)
38-47 years	14.5 (155)
48-57 years	10.1 (108)
58-67 years	9.1 (97)
68+ years	4.5 (48)
Parish of Residence	

Kingston	8.9 (95)
St. Andrew	9.5 (102)
St. Thomas	5.0 (54)
Portland	5.1 (55)
St. Mary	4.7 (50)
St. Ann	6.2 (66)
Trelawny	3.4 (36)
St. James	6.0 (64)
Hanover	2.2 (24)
Westmoreland	12.3 (132)
St. Elizabeth	4.6 (49)
Manchester	14.8 (158)
Clarendon	8.9 (95)

Table 2 depicts the Government's role on theissue of vaccination, n=1071. Of the sampled respondents, 41% (n=439) declared that they were unsure they trust the Jamaican government. 42.2% (n=452) are neutral that the government has the citizen's best interest at heart. 51.5% (n=552) believe that the 'vaccinate Jamaica campaign' is educating and encouraging citizens to take the COVID-19 vaccine, while 61.4% (n=658) believe the campaign is forcing the COVID-19 vaccination. 66.5% (n=712) of respondents agree that the Jamaican government does not listen to concerns, and 64.1% (n=687) agree that the Jamaican government does not use enough time and resources to reassure citizens that conspiracies about the COVID-19 vaccines are not true.

Table 2.Trust for the Jamaican Government, and Government'srole on Mattersrelating toVaccination, n=1071

Details	**% (n)**
Trust the Government	
Yes	19.7 (211)
Not sure	41.0 (439)
No	39.3 (421)
Government has Jamaica's best interest at heart	
Agree	20.3 (217)
Disagree	37.5 (402)
Neutral	42.2 (452)
Vaccinate Jamaican's Campaign is educating and encouraging	
Yes	51.5 (552)
No	48.5 (519)
Vaccinate Jamaican's Campaign is forceful	
Yes	61.4 (658)
No	38.6 (413)
The government listen's to concerns	
Yes	33.5 (359)

No	66.5 (712)
Government used adequate time and resources to reassure Jamaicans	
Yes	35.9 (384)
No	64.1 (687)

Table 3: Vaccination issues and preferences of sampled respondents, n=1071. 51.8% (n=555) of the respondents believe there is no harmful agenda behind the COVID-19 vaccine. 53.2% (n=570) of the respondents received one or both doses of a COVID-19 vaccine. AstraZeneca was the preferred vaccine for 35.3% (n=380) of the respondents. A critical finding from this study is the fact that most respondents indicated that the COVID-19 vaccines are effective in preventing the virus 62.0% (n =664).

Table 3.Vaccination matters and preferences, n=1071

Details	**% (n)**
COVID-19 vaccine effectiveness in preventing the virus	
Yes	62.0 (664)
No	38.0 (407)
Harmful agenda behind promoting vaccines	
Yes	48.2 (516)
No	51.8 (555)
If no, why?	
They are the government and I believe they know what they are doing.	7.9 (85)
They have never given me a reason to distrust them.	8.1 (87)
The government has a great leader	4.5 (48)
Previous vaccines were beneficial, so I believe this one is too.	36.6 (392)
Not applicable	42.9 (459)
If yes, why?	
Because the government has made questionable decisions regarding COVID-19 management in general	25.4 (272)
Because the government has been forcing the vaccine on us, and that is sketchy to me	27.2 (291)
Not Applicable	47.4 (508)
Received one or two doses of the vaccine	
Yes	53.2 (570)
No	46.8 (501)
If yes, why?	
I trust the government to give me a safe and secure vaccine	7.4 (79)
I researched about the vaccine, and I know it is safe	11.1 (119)
I was pressured into taking it	6.7 (72)
It is free now, and I won't afford it if it becomes mandatory at a price	6.6 (71)
I was educated and encouraged to take the vaccine	6.3 (68)
To reduce my chances of hospitalization and death.	19.4 (208)
Not Applicable	42.4 (454)

Vaccines taken or likely to take	
Pfizer	28.3 (303)
AstraZeneca	35.3 (380)
Moderna	5.6 (60)
Johnson and Johnson	6.8 (73)
Other	1.9 (20)
None	21.9 (235)

Before the researchers used the interpersonal trust scale, Cronbach's alpha andexploratory factor analysis were employed on the 5-item scale. The value for Cronbach alpha was 0.689, which means the items can be used for factor analysis. Using exploratory factor analysis, the 5-items revealed that they are suitable and appropriate for factor analysis in constructing an interpersonal trust scale (KMO and Bartlett's Test - Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.074, P < 0.0071; see appendix A). Hence, the researcher have concluded that the 5-items are suitable and appropriate for assessing interpersonal trust among Jamaicans. Based on inter-iten correlation (see Appendix A), the inter-correlation among the various sub-items are relatively low and this indicates that each item is measuring a different concept. As such, the 5-items for the interpersonal trust scale are measuring different concepts of trust.

Figure 1 depicts the interpersonal trust of Jamaicans (n=1071), whereby, 5.9% (n=63) of respondents indicated a low trust, 18.6% (n=199) of respondents revealed a moderate interpersonal trust, 54.6% (n=587) of respondents indicated a high interpersonal trust, 20.7% (n=222) of had a very high iinterpersonal trust.

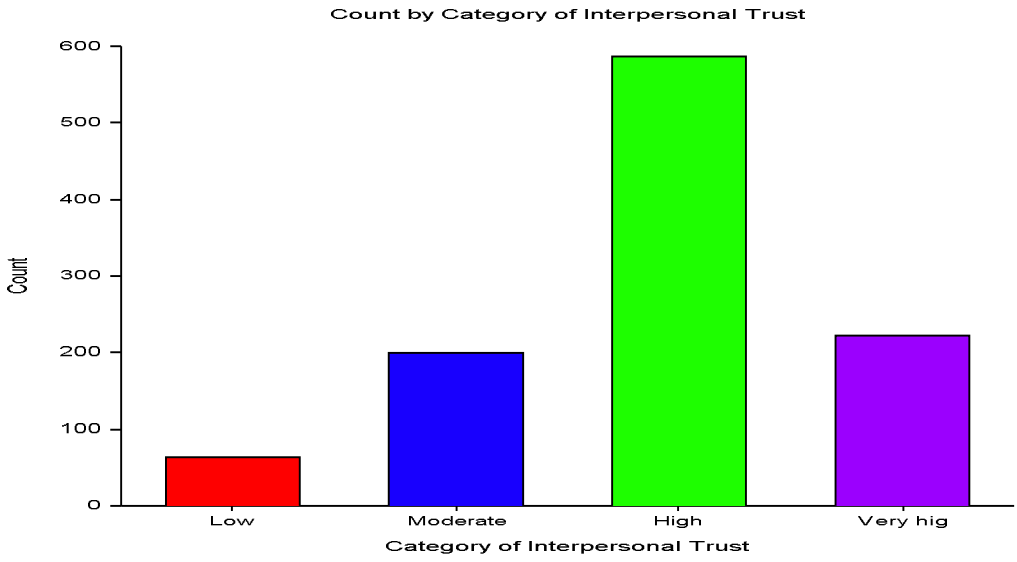

Figure 1.Interpersonal Trust among Jamaicans

Figure 2: Trust scale which was used to assess the trust level of the sampled respondent (n=1071) showed that 357 of the respondents agree that more people will not work if the social security system is further developed.

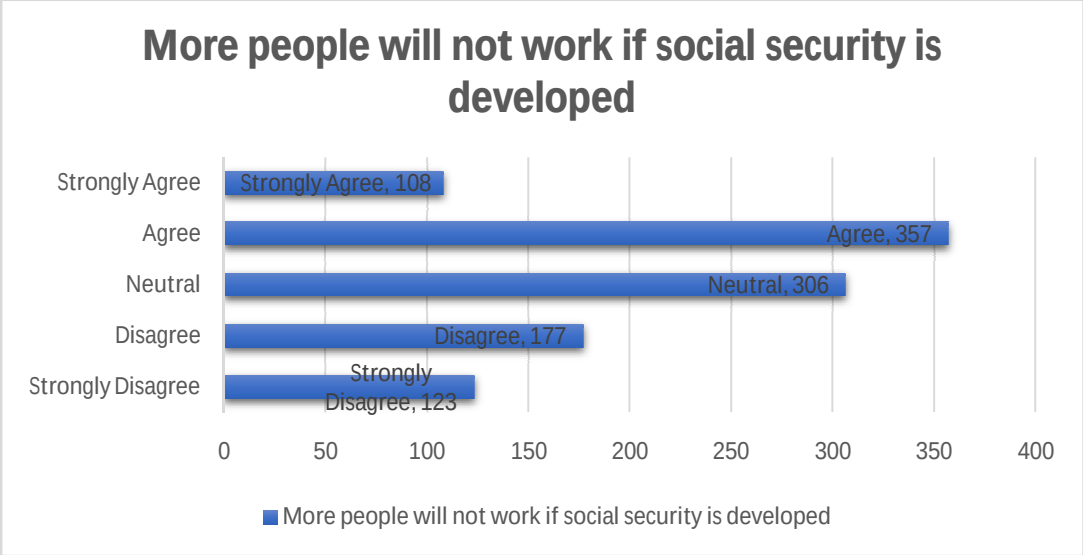

Figure 2.Trust scale

Cross Tabulations

H_0- There is no statistical association between those who trust the Jamaican government and those who decided to take the COVID-19 vaccine.

H_1- There is a statistical association between those who trust the Jamaican government and those who decided to take the COVID-19 vaccine.

The cross tabulation between trusting the Jamaican government and being vaccinated against COVID-19 revealed a statistical association ($\chi^2(2) = 60.639$; $P<0.001$). Hence, we reject the null hypothesis. Furthermore, 1.8 times more respondents who trust the Jamaican government have been vaccinated compared to those who do not trust the government.

Table 4.Cross-tabulation between those who trust the Jamaican government and those who decided to take the COVID-19 vaccine

Details	**Trust the Jamaican Government**			**Total**
Vaccinated	Yes	Not sure	No	
	% (n)	% (n)	% (n)	% (n)
Yes	73.9 (156)	54.7 (240)	41.3 (174)	53.2 (570)
No	26.1 (55)	45.3 (199)	58.7 (247)	46.8 (501)
Total	211	439	421	1071

H_0-There is no statistical association between those who trust the Jamaican government and those who believe the vaccinate Jamaicans Campaign is forcing vaccination.

H_1-There is a statistical association between those who trust the Jamaican government and those who believe the vaccinate Jamaicans Campaign is forcing vaccination.

Table 5 presents a cross-tabulation between those who trust the Jamaican government and those who believe the vaccinate Jamaican's Campaign is forcing vaccination. The data suggests a statistical association emerging between the variables ($\chi^2(2) = 53.380$; $P<0.001$).

Furthermore, 74.3% of those who do not trust the government believes that the vaccination campaign is forcing vaccination compared to 58.3% of those who trust the government.

Table 5.Cross-tabulation between those who trust the Jamaican government and those who believe the vaccinate Jamaican's Campaign is forcing vaccination

Details	**Trust the Jamaican Government**			**Total**
Vaccinate Jamaican's campaign forceful	Yes	Not sure	No	
	% (n)	% (n)	% (n)	% (n)
Yes	58.3 (123)	50.6 (222)	74.3 (313)	61.4 (658)
No	8.2 (88)	49.4 (217)	25.7 (108)	38.6 (413)
Total	211	439	421	1071

H_0-There is no statistical association between those who think the Jamaican Government has the citizen's best interest at heart and those who believe there is a harmful agenda behind promoting vaccines

H_1-There is a statistical association between those who think the Jamaican Government has the citizen's best interest at heart and those who believe there is a harmful agenda behind promoting vaccines

Table 6 presents a cross-tabulation between those who think the Jamaican Government has the citizen's best interest at heart and those who believe there is a harmful agenda behind promoting vaccines. There is a statistical association between those who think the Jamaican Government has the citizen's best interest at heart and those who believe there is a harmful agenda behind promoting vaccines, ($\chi^2(2) = 68.207$; $P<0.001$).Hence, we reject the null hypothesis. Of those who disagree that the government has Jamaican's best interest at heat, 64.4% of them believe that there is a harmful agenda behind promoting the vaccines compared to only 37.3% of those who trust the government.

Table 6.Cross-tabulation between those who think the Jamaican Government has the citizen's best interest at heart and those who believe there is a harmful agenda behind promoting vaccines

Details	**Jamaican's Best interest at heart**			**Total**
Harmful agenda behind promoting vaccines	Agree	Neutral	Disagree	
	% (n)	% (n)	% (n)	% (n)
Yes	37.3 (81)	38.9 (176)	64.4 (259)	48.2 (516)
No	62.7 (136)	61.1 (276)	35.6 (143)	51.8(555)
Total	217	452	402	1071

H_0-There is no statistical association between gender and those who received one or both doses of the COVID-19 vaccine.

H_1-There is a statistical association between gender and those who received one or both doses of

The cross-tabulation between gender and those who received one or both doses of the COVID-19 vaccine is presented in Table 7. Using a chi-square analysis, a significant

statistical association existed between the two aforementioned variables ($\chi^2(1) = 13.093$; $P<0.001$). Hence, we reject the null hypothesis. The findings revealed that more males (59.4%) have taken at least one dose of the COVID-19 vaccine compared to 48.3% of females.

Table 7.Cross-tabulation between gender and those who received one or both doses of the COVID-19 vaccine

Details	**Gender**		**Total**
Received one or two doses of the vaccine	Female	Male	% (n)
Yes	48.3 (290)	59.4 (280)	48.2 (516)
No	51.7 (310)	40.6 (191)	51.8(555)
Total	600	471	1071

H_0-There is no statistical association between parish of residence and those who received one or both doses of the COVID-19 vaccine.

H_1-There is a statistical association between parish of residence and those who received one or both doses of the COVID-19 vaccine.

Table 8 presents a cross-tabulation between parish of residence and those who received one or both doses of the COVID-19 vaccine. Using a chi-square analysis, a significant statistical relationship emerged between the two aforementioned variables ($\chi^2(13) = 40.810$; $P<0.001$). Hence, we reject the null hypothesis.

Table 8.Cross-tabulation between parish of residence and those who received one or both doses of the COVID-19 vaccine

Details	Parish														Total (% n)
Vaccinated															
	Kingston	St. Andrew	St. Thomas	Portland	St. Mary	St. Ann	Trelawny	St. James	Hanover	Westmoreland	St. Elizabeth	Manchester	Clarendon	St. Catherine	
Yes	61.1 (58)	49.0 (50)	55.6 (30)	58.2 (32)	52.0 (26)	51.5 (34)	61.1 (22)	40.6 (26)	62.5 (15)	69.7 (92)	40.8 (20)	39.9 (63)	49.5 (47)	60.4 (55)	53.2 (570)
No	38.9 (37)	51.0 (52)	44.4 (24)	41.8 (23)	48.0 (24)	48.5 (32)	38.9 (14)	59.4 (38)	37.5 (9)	30.3 (40)	59.2 (29)	60.1 (95)	50.5 (48)	39.6 (36)	46.8 (501)
Total	95	102	54	55	50	66	36	64	24	132	49	158	95	91	1071

Table 9 presents a cross-tabulation between interpersonal trust and vaccination status of Jamaicans. The chi-square analysis revealed a significant statistical association between the two previously mentioned variables ($\chi 2(2)=23.2$, $P< 0.0001$). Jamaicans who had a low interpersonal trust were most likely to have taken at least one dose of the COVID-19 vaccine (85.7%) compared to those who had a moderate interpersonal trust (61.3%), a high interpersonal trust (49.6%0), and 46.4% of those with a very high interpersonal trust. Furthermore of the 53.2% of respondents who had indicated having taken at least one dose of the COVID-19 vaccine, 33.79% of them indicated a least a high interpersonal trust (high, 27.17%; very high, 9.62%), 11.39% indicated a moderate interpersonal trust, and 5.04% stated a low interpersonal trust.

Table 9.Cross-tabulation between interpersonal trust and vaccination status of Jamaicans

Details	**Interpersonal Trust**				**Total**
Received one or two doses of the vaccine	**Low**	**Moderate**	**High**	**Vey high**	**% (n)**
Yes	85.7 (54)	61.3 (122)	49.6 (291)	46.4 (103)	53.2 (570)
No	14.3 (9)	38.7 (77)	50.4 (296)	53.6 (119)	46.8 (501)
Total	63	199	587	222	1071

Discussion

The study was conducted to determine if trust is significantly associated with the uptake of the COVID-19 vaccine in the ongoing Jamaican vaccination campaign. The study was was carried out months after the initiation of the COVID-19 campaign with Jamaica experiencing a crisis with one of the lowest level of vaccine acceptance across all socioeconomic groups in the Caribbean (JamaicaObserver, 2021). The response to the COVID-19 vaccination campaign has become politicized; the bickering about vaccine rollout, health infrastructure, testing, protocols, and competition with a more organized social media information distribution network about vaccine development, and conflicting theories about side-effects have resulted in the deceleration of COVID-19 vaccine uptake both locally and internationally (Latkin et al., 2021).

The Ministry of Health and Wellness (2021), stated that as of November 7, 2021, more than one million COVID-19 vaccines have been administered in Jamaica as a part of its blitz vaccination program. According toMathieuet al. (2021), 53.9% of the world has received at least one dose of the COVID-19 vaccine, 7.85 billion doses administered globally and 16.9% of Jamaicans have been fully vaccinated. This shows that the vaccination rate in Jamaica is very low, and brings about the question of why. Is it that the citizens do not trust the government as well as other people or is it due to other reasons?

According to the report on Jamaica Bats for global acceptance of COVID-19 vaccines by the Ministry of Health and Wellness (2021), Jamaica has called for the intervention of the Pan-American Health Organisation (PAHO) and the World Health Organisation (WHO) to ensure the global acceptance of the COVID-19 vaccines being administered by developing countries. In this research, 53.2% of the respondents have received one or both doses of a COVID-19

vaccine. 11.1% of these persons took the vaccine because they researched information about the vaccine and found it to be safe, 7.4% took it because they trust the government to give them a safe vaccine, 6.3% were educated and encouraged to take the vaccine, 6.6% took it because it is free now and feared they wouldn't be able to afford it if it had a cost, while 6.7% felt pressured into becoming vaccinated and 19.4% took it to reduce their risk of hospitalization and death.

When asked which vaccine they have taken or were likely to take, 35.3% of the respondents chose AstraZeneca, and 28.3% chose Pfizer-BioNTech. This is contrary to Brown (2021),who wrote an article in the Jamaica Gleaner titled “Pfizer- U-turn”; where the minister of health, Dr. Christopher Tufton stated that Jamaicans prefer Pfizer-BioNTech, and he maintained that the government promoted vaccines based on availability, not favorability. 6.8% of the respondents chose Johnson and Johnson, and 5.6% chose Moderna. 1.9% of the respondents wanted other vaccines besides the aforementioned, and 21.9% refused any COVID-19 vaccine.

Concerning trust, 19.7% of respondents trust the government, and 39.3% of respondents did not. This leaves 41% of them being uncertain. Fukuyama (1996)postulated that one of the disadvantages of not trusting each other is that there will be a small and ineffective organization. Trust is a fundamental part of developing a functional democratic system and gaining citizen compliance or engagement. This result shows that the government needs to do more work to develop a trusting relationship between its citizens so that there can be more citizen compliance.

There were 23% of respondents who did not trust the government and were not vaccinated, as opposed to 5.1% of those who trust the government but were still not vaccinated. This leaves 18.6% who were uncertain about trusting the government and were not vaccinated. This shows vaccination hesitancy and evidence that there is indeed a statistical association/relationship between those who trust the Jamaican Government and those who decided to take the COVID-19 vaccine. This is supported byHan, et al. 2021, who showed that a higher level of trust in government regarding COVID-19 control was significantly associated with a higher compliance with the COVID-19 measures being implemented. Hence, if there is no trust towards the government, then there will be little compliance.

Based on the socio-ecological model used in this study, it identifies various reasons such as the macrosystem, that contributed to respondents’ decisions to either refuse or receive the COVID-19 vaccine. This system shows that the respondents can be influenced by values, beliefs, and actions such as a campaign. When respondents were asked if they believe that the vaccinate Jamaica campaign was forcing the COVID-19 vaccine, 61.4% of the respondents believed that it was being forced, as opposed to educating and encouraging citizens to be vaccinated. 64.1% of the respondents believe that the Jamaican government is not using enough time and resources to educate citizens and 66.5% of the respondents believe that the Jamaican government does not listen to concerns.

When the respondents were asked if the Jamaican government had the citizen's best interest at heart, 20.3% agreed, 37.5% disagreed and 42.2% of the respondents were neutral. 24.2% of those who disagree that the government has its citizen's best interest at heart also believe that there is a harmful agenda behind the promotion of the COVID-19 vaccine. 7.6% of those who agree that the government has its citizen's best interest at heart also believes that there is a harmful agenda behind the promotion of the COVID-19 vaccine, and 16.4% of those who were "neutral" believes that there is a harmful agenda behind the promotion of the COVID-19 vaccine. The thought of a harmful agenda surrounding the COVID-19 vaccine is often a result of rumors or false information provided or circulated by conspiracy theorists. This is supported by research conducted by Islam et al. 2021 titled "COVID-19 vaccine rumors and conspiracy theories: The need for cognitive inoculation against misinformation to improve vaccine adherence". In that research, it states that rumors and misinformation are being misinterpreted as credible sources which can contribute to vaccine hesitancy and negatively impact the confidence of a population towards the COVD-19 vaccine.

If people use misinformation online as credible sources then they will have little to no trust in their government which contributes to distrust. This is supported by a community-based survey conducted by Danabal et al 2021 in urban and rural India which showed that the choice to become vaccinated against COVID-19 is affected by mistrust in the health system including the manufacturers of the vaccines, fear of adverse reactions of the vaccines and preference for natural immunity. This would explain why there is a combined total of 48.2% who do not trust the health system because they believe there is a harmful agenda behind the COVD-19 vaccination. For the remaining 51.8% who opposed and did not believe there is any harmful agenda, their reasons included believing that the government knows what they are doing, the government did not give any reason to cause distrust, the government has a great leader, and previous vaccines were beneficial so the COVID-19 vaccine is beneficial too.

Concerning gender, 27.1% of femaleshave received one or both doses of the COVD-19 vaccine, and 26.1% of males have received one or both doses of the COVID-19 vaccine. Concerning the parish of residence and those who are vaccinated, the majority 8.6% of sampled respondents were from Westmoreland. They either received one or both doses of the COVID-19 vaccine. 5.3% of the respondents from Manchester either received one or both doses of the COVID-19 vaccine. The least number of respondents who received one or both doses of the COVID-19 vaccine were from Hanover with 1.4% (n=15).

A general trust scale from the Fetzer Institute was used to assess the trust level of the respondents which required responses like, strongly agree, agree, neutral, disagree, and strongly disagree. The majority of responses were noted for each of the following statements. We stated that most people tell a lie when it can benefit them and 428 persons agreed. We stated that unselfish people were often exploited and 429 persons agreed. We stated that people only pursue their self-interest and 431 people agreed. We stated that most people are honest and a majority of 390 persons were neutral. Lastly, we stated that more people will not work if the social security system is further developed and 359 persons agreed. Scores for

each respondent would have been averaged together to form a continuous measure of generalized trust. This data showed that the majority of the people who participated in this research had a low general trust level of the government, and that 53.2% of them trust each other (low interpersonal trust, 5.04%; moderate interpersonal trust, 11.39%; high interpersonal trust, 27.17%; and very high interpersonal trust, 9.62%).

The low public trust translates into high vaccine hesitancy (Karoub, 2021) as well as healthcare choices of citizens (Bourne, Francis & Kerr-Campbell, 2010; Lalumera, 2018). According to Karoub (2021), "Government failures and misdeeds further foster alienation and distrust, which make those affected more likely to believe misinformation. That's only exacerbated by media fragmentation and ideological silos of social media."The reality is, people's distrust extends beyond that for the government to the wider institutions in the society (Karoub (2021), which accounts for their distrust for even the pharmacuteical and medical sectors. In fact, Lalumera (2018) opined that "I propose a conceptual analysis of the trust relation between the public and a healthcare system, drawing from healthcare studies and philosophical proposals" which holds the key to explaining the high vaccine hesitancy among peoples in the world, particularly nations with high rates of corruption and distrust for government. This trust deficit is adversely influencing COVID-19 vaccination in Jamaica, which concurs with the literature (Daly, Jones, & Robinson, 2020; Davis, 2021; Lalumera, 2018; Jennings, et al. 2021; Karoub, 2021; Shen & Dubey, 2019; World Health Organization (WHO), 2017). In fact, Nair, Nayar, Koya, *et al.* (2021) postulated that "Anti-vaccine groups use social media to influence caregivers' perceptions and beliefs" which is fueling the already fragile trust between the people and the government and as such influencing the people's acceptance of the medical sector when its programmes are supported by the government.

De Freitas, et al. (2021) explain the tenets of distrust this when by postulating that "Increasing levels of trust in the medical sector were associated with decreasing levels of believing misinformation." As such, the high vaccine hesitancy is not merely an indication of the distrust in government, it indicates public distrust for institutions inclusive of the healthcare industry (Bagasra, Doan, & Allen, 2021; Jennings, et al., 2021). Lalumera opined that"[The]Health care systems can positively influence our personal decision-making and health-related behavior only if we trust them" (Lalumera, 2018, p. 105).The reality is, people are questioning the credibility of the healthcare system and this is evident from the high vaccine hesitancy occurring in many parts of the globe.The current findings revealed that of the 53.2% of sampled respondents who have taken at least a dose of the COVID-19 vaccine, 33.79% had at least high interpersonal trust (high trust, 27.17%; very high trust, 9.62%), and 11.39% had moderate interpersonal trust, and only 5.04% had low interpersonal trust. Therefore, vaccine hesitancy must be addressed from the perspective of building trust (Daly, Jones, & Robinson, 2020; Shen, & Dubey, 2019) and confidence in the vaccine (World Health Organization, 2017), and not from legislative framework.

Conclusion

The data from the current study indicates that there is a significant level of distrust about the government and the COVID-19 vaccine among Jamaican citizens that needs to be addressed.

The government needs more consultations by townhall meetings and social media to create transparency and ownership by the population of its public health and healthcare policies, procedures and practices. The Jamaican government needs to provide genuine leadership and shared decision-making about the COVID-19 vaccines that will create an environment for the population to get the desiredbenefit from the vaccine that prevents them from contracting the life threatening disease that they are remindedabout daily through news briefs. The way forward is to build trust, transparency, and restoration of confidence in public institutions inclusive of the healthcare system. For years, the healthcare system as well as governments have not been paying attention to the erosion of public trustin them and result is vaccine hesitancy.

Recommendations

The findings from this study has implications for future researchers on how to articulate the development and approval process of the different vaccines more clearly to the Jamaican population. And; to provide frequent feedback in the form of testimonial from individuals that have benefited from the vaccination programme.

Subsequently, the public-private stakeholder parthnership will provide new cultural information about the barrier that prevent effective implementations of programmes; it will also inform policymakers about the most effective approaches to consult and set-up consultations with residents in underserved communities. The development of community-based relationships will provide information about the gap in gaining consent to vaccinate children 12 years old and older.

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Appendix A: Factor Analysis for interpersonal trust scale

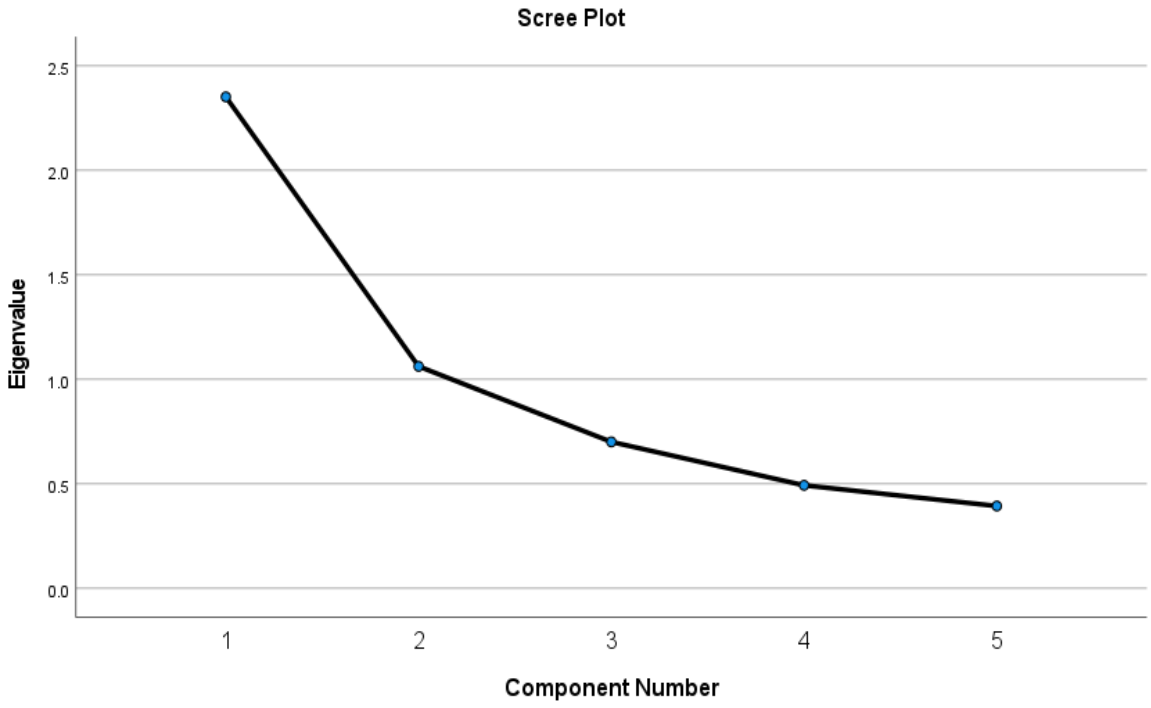
Inter-Item Correlation Matrix					
	Most people tell lie when they benefit	Unselfish people are often exploited	People do not cooperate because they only pursure their own self-interest	Most people are honest	More people will not work if social security is developed
Most people tell lie when they benefit	1.000	0.584	0.501	0.035	0.285
Unselfish people are often exploited	0.584	1.000	0.572	0.080	0.304
People do not cooperate because they only pursure their own self-interest	0.501	0.572	1.000	0.089	0.343
Most people are honest	0.035	0.080	0.089	1.000	0.214
More people will not work if social security is developed	0.285	0.304	0.343	0.214	1.000

Descriptive Statistics			
	Mean	**Std. Deviation**	**Analysis N**
Most people tell lie when they benefit	3.43	1.217	1071
Unselfish people are often exploited	3.40	1.106	1071
People do not cooperate because they only pursure their own self-interest	3.41	1.125	1071
Most people are honest	2.79	1.041	1071
More people will not work if social security is developed	3.14	1.159	1071

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.740
Bartlett's Test of Sphericity	Approx. Chi-Square	1154.183
	df	10
	Sig.	<.001

Communalities		
	Initial	Extraction
Most people tell lie when they benefit	1.000	0.680
Unselfish people are often exploited	1.000	0.718
People do not cooperate because they only pursure their own self-interest	1.000	0.663
Most people are honest	1.000	0.833
More people will not work if social security is developed	1.000	0.519
Extraction Method: Principal Component Analysis.		

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2.351	47.027	47.027	2.351	47.027	47.027	2.303
2	1.062	21.237	68.264	1.062	21.237	68.264	1.267
3	0.700	14.010	82.274				
4	0.493	9.853	92.127				
5	0.394	7.873	100.000				
Extraction Method: Principal Component Analysis.							
a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.							



Component Matrix[a]		
	Component	
	1	2
Most people tell lie when they benefit	0.787	-0.245
Unselfish people are often exploited	0.828	-0.183
People do not cooperate because they only pursure their own self-interest	0.807	-0.113
Most people are honest	0.216	0.887
More people will not work if social security is developed	0.591	0.412
Extraction Method: Principal Component Analysis.		
a. 2 components extracted.		
Pattern Matrix[a]		
	Component	
	1	**2**
Most people tell lie when they benefit	0.839	-0.090
Unselfish people are often exploited	0.851	-0.019
People do not cooperate because they only pursure their own self-interest	0.803	0.047
Most people are honest	-0.159	0.933
More people will not work if social security is developed	.387	0.531
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

Structure Matrix		
	Component	
	1	2
Most people tell lie when they benefit	0.820	0.089
Unselfish people are often exploited	0.847	0.162
People do not cooperate because they only pursure their own self-interest	0.813	0.218
Most people are honest	0.040	0.899
More people will not work if social security is developed	0.500	0.614
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.		
Component Correlation Matrix		
Component	1	2
1	1.000	0.213
2	0.213	1.000
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.		

Structure Matrix		
	Component	
	1	2
Most people tell lie when they benefit	0.820	0.089
Unselfish people are often exploited	0.847	0.162
People do not cooperate because they only pursure their own self-interest	0.813	0.218
Most people are honest	0.040	0.899
More people will not work if social security is developed	0.500	0.614
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.		