

A Comparative Analysis of Diet and Nutrition of Jamaican Women during and Post-COVID-19

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Abstract

Background: The Coronavirus disease 2019 (COVID-19) that emerged in 2019 in Wuhan, China caused a massive impact on health, resulting in drastic lifestyle changes worldwide. These lifestyle changes include social distancing, isolation, working from home and dietary changes. **Objective:** Our study aimed to investigate the impact of the COVID-19 pandemic on the diet and nutrition of women aged ≥ 18 yrs in Jamaica. It also examined the dietary practices of women before the COVID-19 pandemic. **Results:** The findings indicate most of the sampled respondents were in the 18-24 age group, age cohort 32.6% (348) in the parish of Kingston & St. Andrew 22.3% (238). 57.3% (611) of them indicated that their diet was affected by COVID-19 while they had a change in dietary practices while 42.7% (456) persons did not. **Conclusion:** Many of Jamaica's women experienced dietary changes due to the pandemic. Furthermore, the study revealed an increase in home-cooked meal consumption and weight gain.

Keywords: diet, nutrition, Jamaican women, dietary changes, consumption, COVID-19, pandemic, social distancing, isolation, lifestyle changes.

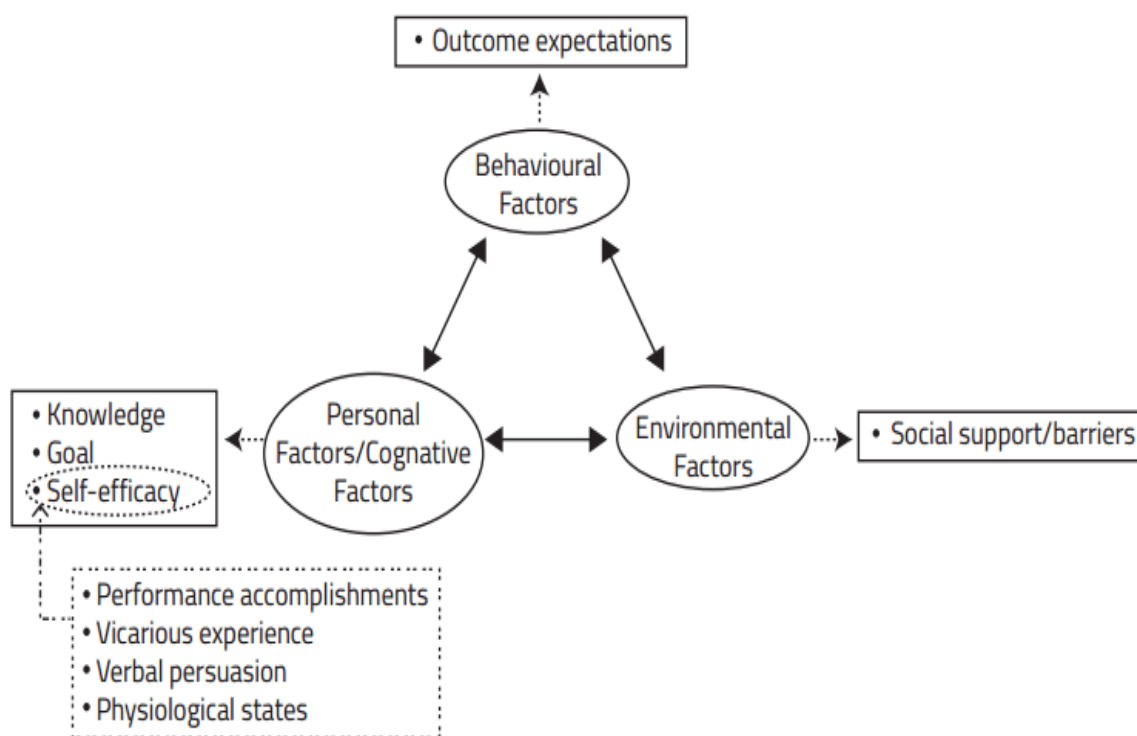
Introduction

The Coronavirus (COVID-19) emerged from Wuhan, China in 2019. It is an infectious disease which is caused by the SARS-CoV-2 virus that affects the respiratory system. According to the World Health Organization (WHO), it was declared a pandemic on March 11, 2020 [1]. People with COVID-19 have had a wide range of symptoms, ranging from mild to severe illness.

Symptoms may appear 2-14 days after exposure to the virus. Some symptoms include fever, cough, body aches, and loss of smell and taste [2]. On March 10, 2020, Jamaica recorded its first coronavirus case; this pandemic has contributed to drastic lifestyle changes across the island [3]. In the same breath, public gatherings were discouraged, and people were encouraged to limit their social interactions by staying home. Research shows that individuals respond to COVID-19 and limited social interaction by using food as a coping mechanism; thus, resulting in overeating which contributes to weight gain. Social isolation is a result of the COVID-19 pandemic, and many people are consuming less healthy meals (i.e., junk foods) instead of home-cooked meals because of the emotional state that they are in [4].

This research aims to investigate the impact of the COVID-19 pandemic on the diet and nutrition of women in Jamaica. Data collection occurs among women in all fourteen parishes of Jamaica ages ranging from 18 years old to 65 years to help the researchers achieve their targeted goal. The research tool that was used is a survey utilizing a questionnaire which will provide relevant information on the impact of the COVID-19 pandemic on the diet and nutrition of women in Jamaica. Findings will also determine the eating habits before and after COVID-19 whether it is more or less, also if women gained weight during the pandemic. Furthermore, this study will provide the public with insight into the number of women whose diet and nutrition was affected by the COVID-19 pandemic. This research aims to prove that a significant majority of our women gained weight as a result of the pandemic. Hence, this study will interpret and analyze the findings using social cognitive theory.

Theoretical Framework



Source: (Esource research, 2021)

Figure 1: The Elements of Social Cognitive Theory

Figure 1 shows the Social Cognitive Theory which was initiated as a social learning theory in the 1960s by Albert Bandura; however, it further developed in 1986 as the social cognitive theory and propounds that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behaviour [5].

The social cognitive theory is congruent with this research because the COVID-19 pandemic caused many women to stay home, whether laid off or working from home. As a result of being at home, individuals tend to adapt and gravitate to behaviours that are present in their environment. This lifestyle has led to dietary changes in women. All things considered, social cognitive theory corresponds with how experiences influenced by COVID-19 and the changes in women's environment can impact behaviour; in this case, health behaviour.

Literature Review

The Coronavirus pandemic has become one of this generation's most globally discussed topics. The Coronavirus has caused many changes globally; changes related to how we socialize, eat and think. This research zoomed in on how the Coronavirus affected the diet of women in Jamaica. The COVID-19-related lockdown imposed extreme adjustments in lifestyle choices that had significant short- and long-term health and nutritional ramifications, including weight gain and obesity and increased cardiometabolic risk, which were consistently connected to worsening prognosis.

Food insecurity, general stress, eating disorders, physical inactivity, and social isolation are just realities of the COVID-19 pandemic [6]. Research conducted by Paul Bourne and students at the Northern Caribbean University concluded that COVID-19 has affected the well-being and mental health of individuals, changing how individuals spend their time and perhaps affecting subjective well-being. This may influence lifestyle choices in some way or another [7]. Emotional eaters are triggered to eat by negative emotions. This may be because eating-related peptides like ghrelin or stress hormones like cortisol, which regulate eating, are affected. The goal of the current investigation was to determine whether eating would affect these neuroendocrine responses in women and how stressor-induced alterations in cortisol and ghrelin may be of influence [8].

Based on different considerations, every country may have found various responses to the lockdown as it relates to diet. A study by Bhutani et al. [9] found that there was an increase in the average body weight during the post-lockdown period. The body mass index also increased during the peak-lockdown period and the post-lockdown period. During the post-lockdown, over 40% of subjects reported gaining between 1-4 pounds and >5 pounds while 18.2% reported losing weight. Weight-gainers were less active, reported high levels of stress, and had less control over their cravings during peak lockdown. They also engaged in risky eating habits such as frequent consumption of ultra-processed foods and snacking [9].

To halt the spread of the virus and "flatten the curve" of the pandemic, the COVID-19 worldwide shutdown was enacted. However, the lockdown's impact has been felt widely across many facets of society, including changes to the accessibility and organization of how education is delivered to students, food insecurity due to scarcity and price fluctuations, the global economic downturn, an uptick in mental health issues, as well as modifications in wellbeing and quality of life [10].

Several studies reveal various issues that may arise in light of the Coronavirus pandemic. A study conducted by Pellegrini et al. [11] revealed the existence of eating disorders and higher restricting diets, binge eating, purging, and exercise habits. In the general population, restrictive and binge eating behaviours increased; however, respondents reported less activity than before the pandemic. The findings have important implications for better monitoring and diet management for eating changes during the COVID-19 pandemic. Additionally, it is important to recognize and keep an eye out for any potential long-term effects of altered diet and exercise habits on the general populace's mental and physical health [11].

These findings are significant in our research because it suggests the influence the pandemic has had on our behaviour, especially as it relates to food consumption. The connections between changes in weight/BMI and the investigated factors were assessed using multivariate regression analysis. A higher weight gain was associated with decreased activity, self-reported feelings of loneliness or boredom, anxiety or sadness, increased eating, and the use of snacks and unhealthy foods such as cereal and sweets. Increased education, self-reported anxiety/depression, and not eating healthy foods were all significantly associated with increased weight gain, according to multiple regression analyses. Self-reported anxiety and depression were estimated to have a direct weight-related effect significantly on women.

The changes that came with the pandemic caused behaviour changes no matter how hard one would try to avoid them and soon the changes became our new way of living. This is the reason why the social cognitive model was the best fit because it serves as a pillar in the sense that these findings imply that self-regulatory behaviour plays a crucial part in adults' decisions to eat healthier foods. Adults should be more successfully assisted in adopting the self-regulatory behaviours necessary for purchasing and consuming healthier foods if interventions are successful in boosting nutrition-related self-efficacy [13].

Materials and Methods

This research study utilized the cross-sectional descriptive research design using a multi-stage probability sampling technique [14]. According to Charles Stangor [15], quantitative research is descriptive research that uses more formal measures of behaviour, including questionnaires and systematic observation of behaviour, which are designed to be subjected to statistical analysis. A questionnaire was created using the Google form platform and the data will be collected over four weeks (i.e., October 1, 2022, to November 1, 2022). The questionnaire consists of fifteen closed-ended questions. The participants could gain access to the survey tool via social media platforms such as WhatsApp, Instagram, Facebook, emails and face-to-face. Data will be collected from women aged ranging from 18 to 65 years old from the 14 parishes of Jamaica. In addition, the purpose of the study was highlighted by the researchers for the survey to be completed and informed consent was given by the participants. The Statistical Packages for the Social Sciences (SPSS), percentage and frequency were used to analyze the data, [16]. There are 14 parishes in Jamaica and the sample size was determined by STATINS composition utilizing the sample size calculating formula which determined the sample size to be 1067 [17]. Data was retrieved, stored and analyzed using SPSS for Windows version 29.0. The research utilized a cross-sectional study on females aged ranging from 18-65 years across the 14 parishes of

Jamaica using a stratified sampling technique to collect the data. The sample size stratification of the women is presented in Annex 1.

Findings and Analysis of Results

Table 1 depicts the demographic characteristics of the Sample Respondents. Of the sampled respondents (n=1067), most were in the 18-24 age group age cohort 32.6% (348) in the parish of Kingston & St. Andrew 22.3% (238).

Table 1: Demographic Characteristics of the Sample Respondent, n=1067

Details	%(n)
Gender	
Female	1067
Age Cohort	
18-24	32.6% (348)
25-34	21.7% (232)
35-44	13.4% (143)
45-54	9.8% (105)
55-64	11.4% (122)
65 and over	10.8% (115)
Area of Residence (parish)	
Kingston and St. Andrew	22.3% (238)
St. Mary	5.0% (53)
St. Thomas	5.2% (56)
Portland	4.9% (52)
St. Elizabeth	8.8% (94)
Westmoreland	7.2% (77)
Hanover	7.3% (78)
Manchester	9.8% (105)
St. James	7.8% (83)
Trelawny	5.0% (53)
St. Ann	5.0% (53)
Clarendon	6.4% (68)
St. Catherine	5.3% (57)

Table 2 depicts the data of the sampled respondents' dietary practices along with their choice of intake and consistency since COVID-19. Of the sampled respondents 26.4% (277) consumed junk food 0-1 times per day. 34.5% (362) of the respondents consumed junk food 3-4 times per day. However, 25.4 % (271) of the respondents admitted to consuming fruits and vegetables daily before COVID-19; on the other hand, 16% (171) reflected the consumption of fruits and vegetables once a week since COVID-19. 59% (630) of respondents admitted to consuming sugary drinks while 41% (437) of the respondents admitted to consuming water since COVID-19.

Table 2: shows Dietary changes in women since COVID-19

Details	% (n)
Junk food consumed since COVID-19	
0-1	26.4% (277)
2-3	31.3% (329)
3-4	34.5% (362)
5 or more	7.8% (18)
Fruits and Vegetable consumption before COVID-19	
Daily	25.4% (271)
Every other day	31.9% (340)
Once per week	38.8% (414)
Other	3.9% (42)
Fruits and Vegetable consumption since COVID-19	
Daily	16% (171)
Every other day	28% (299)
Weekly	42.1% (449)
Other	13.9% (148)
Sugary drink vs. Water consumption since COVID-19	
Sugary Drinks	59% (630)
Water	41% (437)

Table 3 shows the eating consistency of women before and during COVID-19. 57.3% (630) of the respondents admitted that COVID-19 affected their diet. 12.7% (136) of the respondents had 1 meal per day while 45.9% (490) of respondents had 3 meals per day before COVID-19. On the other hand, 5.0% (53) of the respondents had 1 meal per day and 46.9% (500) had 3 meals per day since COVID-19. Before COVID-19, 28.9% (308) of the respondents consumed 0-1 snack between meals per day and 31.2% (333) of the respondents consumed 2-3 snacks per day between meals. Since COVID-19, 18.7% (199) of the respondents consumed 0-1 snack per day between meals while 33.2% (354) consumed 3-4 snacks per day between meals.

Table 3: Eating consistency of women before and during COVID-19

Details	% (n)
Effects COVID-19 have on your diet	
Yes	57.3% (611)
No	42.7% (456)
Meals consumed per day before COVID-19	
1 meal	12.7% (136)
2 meals	31.8% (340)
3 meals	45.9% (490)
4 meals	9.6% (102)
Meals consumed per day since COVID-19	
1 meal	5.0% (53)
2 meals	22.9% (244)

3 meals	46.9% (500)
4 or more	25.3% (270)
Snacks consumed between meals before COVID-19	
0-1	28.9% (308)
2-3	31.2% (333)
3-4	28.7% (306)
5 or more	11.2% (120)
Snacks consumed between meals since COVID-19	
0-1	18.7% (199)
2-3	30.8% (329)
3-4	33.2% (354)
5 or more	17.3% (185)

Figure 2 shows weight gain in women since COVID-19. 74%(787) of the respondents admitted to gaining weight while 26% (280) of the respondents admitted they did not gain any weight.

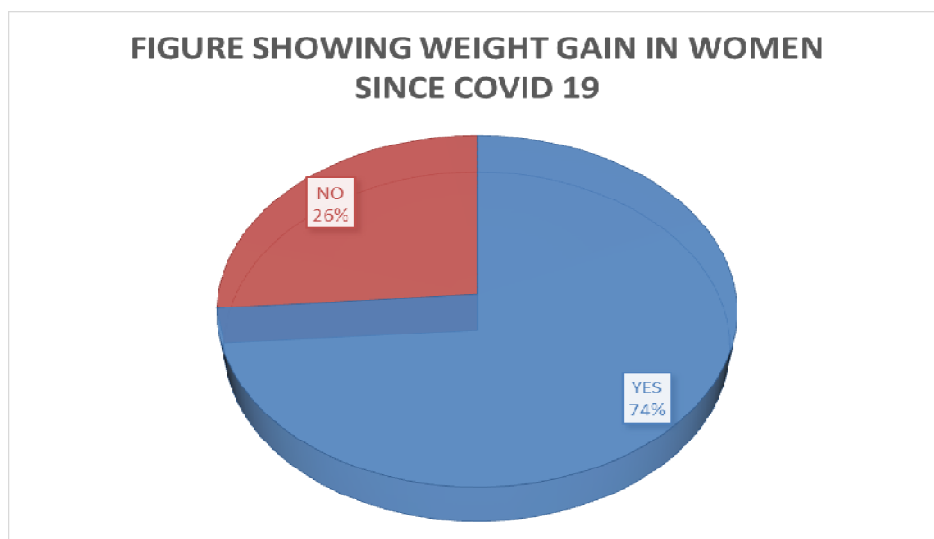


Figure 2: Respondents' views on whether they have experienced weight gain since COVID-19

Figure 3 depicts the amount of weight women gain since COVID-19. Of 895 women, 28% (251) of the respondents admitted to gaining 0-10lbs, 32% (286) admitted to gaining 11-20 lbs, 24% (215) gained 21-30 lbs and 16% (143) of the respondents admitted to gaining over 30 pounds.

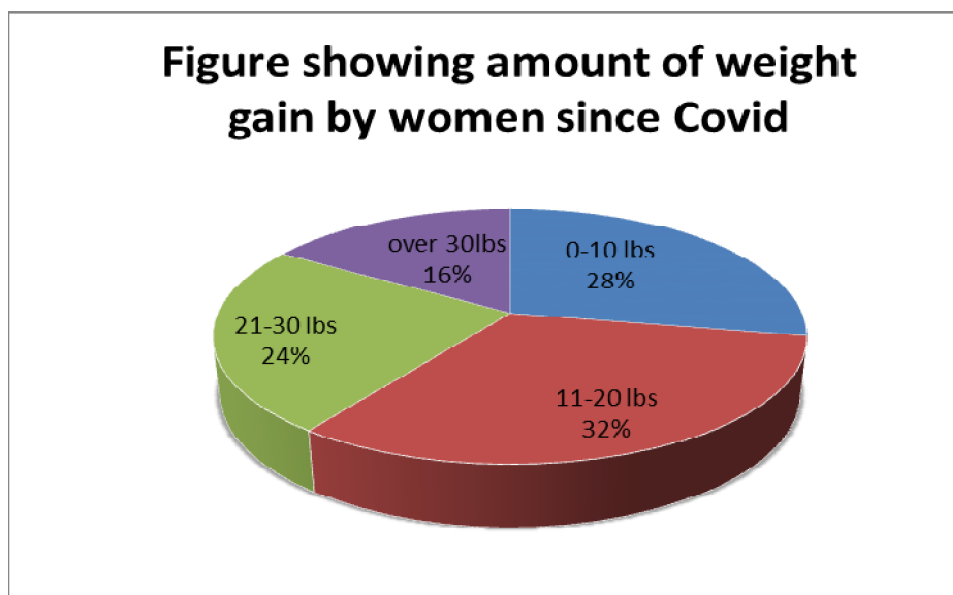


Figure 3: Respondents' views on self-reported weight gain since COVID-19

Figure 4 depicts the number of respondents who consumed home-cooked meals versus street meals since COVID-19. Since COVID-19, 18.6% (196) of the respondents consume 0-1 home-cooked meal per day while 38.9% (406) of the respondents consume 0-1 street food per day. 40.6% (427) respondents consumed 2-3 home-cooked meals and 27.8% (290) consumed 2-3 street foods. In addition, 33.0% (347) of the respondents consumed 3-4 home-cooked meals while 26.4% (276) of the respondents consumed 3-4 street foods. 7.8% (82) respondents consumed 5 or more home-cooked meals per day and 6.9% (72) respondents consumed 5 or more street food per day since COVID-19.

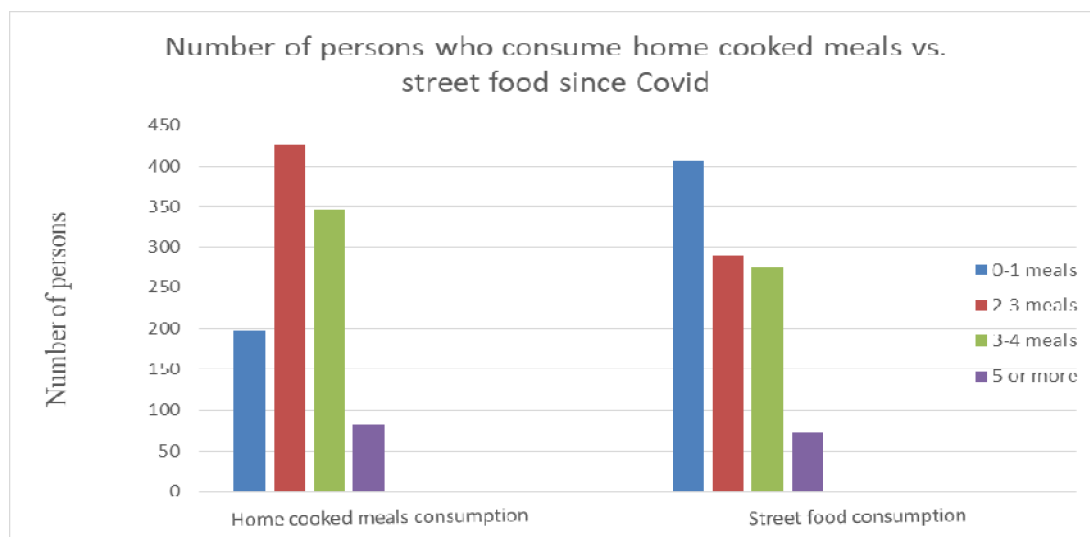


Figure 4: Number of home-cooked meals vs street food consumed since COVID-19

Discussion

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus that mainly depresses the human respiratory system. The World Health Organization declared COVID-19 as a Pandemic on March 11, 2020 [18]. With such a declaration it has been causing a

global crisis in all spheres and having a rippling effect on people forcing them to make drastic adjustments to their daily lives. COVID-19 has resulted in unhealthy behaviour practices that people have been engaged in; these include eating more than normal, physical inactivity and weight gain [19].

This research investigate the impact of the COVID-19 pandemic on the diet and nutrition of women aged ≥ 18 yrs in Jamaica. It also examined the dietary practices of women before the COVID-19 pandemic. The findings of this study show how the COVID-19 pandemic promotes dietary changes in women across Jamaica. The target population was 1067 respondents from the 14 parishes of Jamaica with Kingston having the highest population. The study was limited to Jamaica as the researchers aimed to keep it locally. Therefore, our study focused on how the COVID-19 Pandemic affected the Diet and Nutrition of Women in Jamaica. Throughout this research, the researchers investigated how the pandemic affected their consumption of meals, what their dietary intake was before and during the pandemic and whether they gained weight or not.

During one month (October 1 to November 1, 2022), a total of 1067 persons completed the questionnaire via Google Forms. This study was comprised entirely of females 18-65 years old across the 14 parishes of Jamaica. Table 1 depicts the demographic characteristics of the Sample Respondents. Of the sampled respondents (n=1067), most were in the 18-24 age group age cohort 32.6% (348) in the parish of Kingston & St. Andrew 22.3% (238). Table 2 depicts the data of the sampled respondents' dietary practices along with their choice of intake and consistency since COVID-19. Of the sampled respondents 26.4% (277) consumed junk food 0-1 times per day. 34.5% (362) of the respondents consumed junk food 3-4 times per day. However, 25.4 % (271) of the respondents admitted to consuming fruits and vegetables daily before COVID-19; on the other hand, 16% (171) reflected the consumption of fruits and vegetables once a week since COVID-19. 59% (630) of respondents admitted to consuming sugary drinks while 41% (437) of the respondents admitted to consuming water since COVID-19. When examining the fruits and vegetables intake before and during COVID-19, it shows that the highest number of respondents consumed fruits and vegetables daily. The results are like what was obtained from a study conducted by Khamees et al.[20]. The current study showed that 25.4% of Jamaican women (n=271) consumed fruits and vegetables daily before COVID-19 while 16.0% (n=181) admitted to consuming fruits and vegetables daily during COVID-19. Table 3 shows the eating consistency of women before and during COVID-19. 57.3% (630) of the respondents admitted that COVID-19 affected their diet while 42.7% (456) respondents reported that COVID-19 has not affected their diet. Based on the results, 45.9% (490) respondents consumed 3 meals before COVID-19, 12.7% (136) respondents consumed 1 meal and 9.6% (102) consumed 4 meals per day before COVID-19.

On the other hand, 5.0% (53) of the respondents had 1 meal per day, 46.9% (500) had 3 meals per day and 25.3% (270) respondents had 4 meals per day since COVID-19. Before COVID-19, 28.9% (308) of the respondents consumed 0-1 snack between meals per day and 31.2% (333) of the respondents consumed 2-3 snacks per day between meals. Since COVID-19, 18.7% (199) of the respondents consumed 0-1 snack per day between meals while 33.2% (354) consumed 3-4 snacks per day between meals. The results obtained are similar to the study conducted by Alifia

Bhol, et al. [21] in Mumbai city, India where there was an increase in the number of meals during COVID-19 as opposed to before COVID-19. Increased consumption of snacks between meals was also revealed. According to the study, the easy availability of snack items while cooking at home may be one of the reasons for the increased consumption of snacks [21]. Figure 4 shows weight gain in women since COVID-19. According to Figure 4, 74% (787) of the respondents admitted to gaining weight while 26% (280) of the respondents admitted they did not gain any weight. Of 895 women, 28% (251) of the respondents admitted to gaining 0-10 pounds, 32% (286) admitted to gaining 11-20 pounds, 24% (215) gained 21-30 pounds and 16% (143) of the respondents admitted to gaining over 30 pounds. According to the Saudi Arabian study, dietary changes and stay-at-home restrictions could be possible factors contributing to weight gain during the pandemic.

Changes in eating habits that have been observed during the pandemic that may contribute to weight gain include consuming more meals, snacking between meals and drinking sweetened beverages [22]. Figure 6 depicts the number of respondents who consumed home-cooked meals versus street meals since COVID-19. Since COVID-19, 18.6% (196) of the respondents consume 0-1 home-cooked meal per day while 38.9% (406) of the respondents consume 0-1 street food per day. 40.6% (427) respondents consumed 2-3 home-cooked meals and 27.8% (290) consumed 2-3 street foods. In addition, 33.0% (347) of the respondents consumed 3-4 home-cooked meals while 26.4% (276) of the respondents consumed 3-4 street foods. 7.8% (82) respondents consumed 5 or more home-cooked meals per day and 6.9% (72) respondents consumed 5 or more street food per day since COVID-19. Before COVID-19, people had more access to street food as they were on the street more frequently because they'd have to go to work daily. During the COVID-19 pandemic, people were able to consume more home-cooked meals as the movement was limited and the working class was forced to stay home thus facilitating meal preparation and consumption at home. For example: According to the Jamaican Gleaner, KFC has been struggling to cope with significant declines in sales and transactions of more than half of its business, [23]. In light of this, COVID-19 has a negative and positive impact on women in Jamaica. Looking on the bright side, it causes an increase in home-cooked meals and on the other hand it promotes weight gain which may or may not cause health-related issues.

Conclusion

This research provides information on the impact of the COVID-19 pandemic on the diet and nutrition of women in Jamaica. Throughout this research, the researchers examined how the pandemic affected their consumption of meals, what their dietary intake was before and during the pandemic and whether they gained weight or not. Over one month (Oct-Nov), a total of 1067 people conducted the questionnaire via Google Forms. This study included females aged 18-65 across the 14 parishes of Jamaica. Many respondents' age ranges from 18-24 years and resides in the parish of Kingston & St. Andrew.

The current study showed that eating habits such as the increased consumption of meals changed during the pandemic. Based on our findings, showed that people consumed more home-cooked meals than junk food because people were working from home during the lockdown period

which made it possible for them to prepare meals. Before COVID-19, people had more access to street food/restaurant food frequently because they would have to go to work daily.

The study showed people admitting to weight gain during the pandemic. According to the Saudi Arabian study, dietary changes and stay-at-home restrictions could be possible factors contributing to weight gain during the pandemic. Changes in eating habits that have been observed during the pandemic may contribute to weight gain [22]. It goes to show that COVID-19 affected dietary practices and promote weight gain in women; therefore, the implementation of health promotion programs where dieting and physical activity are concerned may be of good help.

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Annex 1

Population, and Sample Size Calculation for the current study

Parish	Total population	Probability	Per cent	Sample size
Kingston and St Andrew	669,978	0.246	24.564	262
St Thomas	94,968	0.035	3.482	37
Portland	82,669	0.030	3.031	32
St Mary	114,902	0.042	4.213	45
St Ann	174,256	0.064	6.389	68
Trelawny	76,005	0.028	2.787	30
St James	185,753	0.068	6.810	73
Hanover	70,287	0.026	2.577	27
Westmoreland	145,673	0.053	5.341	57
St Elizabeth	151,885	0.056	5.569	59
Manchester	191,940	0.070	7.037	75
Clarendon	247,778	0.091	9.084	97
St Catherine	521,409	0.191	19.117	204
Total	2,727,503	1.000	100.000	1,067