# Impact of Precautionary Measures of COVID-19 on Egyptian Women Nutritional habits

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## Abstract:

This study aims to recognize the impact of precautionary measures of COVID-19 on the nutritional habits in Damietta's women. While was implementing a study about nutritional habits for women In November 2019, It was announced on February 14, the first case of COVID-19 in Egypt. Though, staying at home can cause disturbance of well-being, and the daily activities. So added an electronic questionnaire in June 2020, the study sample consisted of 591 women answered a questionnaire before and after the prevalence of the (Covid-19) virus in Egypt (300 women were Pre-test and 291women were Post-test). Data were taken from the individuals of the sample, preliminary data included name- age- educational level- occupational level- salary - expenditure on food compared to income, in addition to applying test to measure nutritional habits, in November 2019 (pre-test) in June 2020 (post-test. Women were divided according to the education's degree to six groups. Regard to the results, most of the women, whether in pre-test or post-test, their monthly income ranges between 1200-3000 pounds (57% and 57.73%) respectively. Furthermore, most of the women, whether in pre-test or post-test, average of spending in food between 25%to 50% from the salary increased from 64.33% to 68.38% respectively. Regarding to, nutritional habits most of the women in all groups had poor nutritional habits (79% and 80.41%) Pre-test and Post-test respectively. This study recommended that, more studies should be conducted during the event of the continued presence of (Covid-19) and the precautionary measures should be limited to reduce food intake, and avoid bad nutritional habits.

**Keywords:** *Corona Virus – Women's habits – Monthly income – Educational level – Occupational level – Nutritional habit.*

## Introduction

Coronavirus disease (COVID-19) is a global health severe Leads to lockdowns, lifestyle and diet changes **(Tonderay and Prosper., 2020)**

Since February 14, 2020 when the 1st case of COVID – 19 appeared in Egypt the cases numbers were increased to exceed 7000 cases in May 2020. With a mortality rate of 6.4% **(Health.; 2020)**

**Food and agriculture Organization of the United Nations (2020)** declared that while no dietary supplements or foods can prevent COVID-19 infection, but healthy diet is important for supporting an immune system. So the strong immunity or balanced nutrition is very important before, during and after an infection.

To control this virus, several countries put preventive measures to stop spread, like home confinement. **(Azizi *et al*., 2020)**

Therefore, it led to change in several daily habits, including the ability to perform sports, and social interactions **(Willett *et al*., 2019)**

Though, staying at home can cause Disturbance of well-being, and the daily activities' health-related quality of life and behavior-related lifestyle. Regarding COVID-19 pandemic, It has been reported that it has an impact on mental health, psychological behaviors and anxiety/depression **(Asmaa *et al*., 2020)**

There is a mutual relation between mood or psychiatric status and diet. In this regard, diets are being having positive effects on mood **(Arman *et al*., 2019)**

The Psychological condition is also affected by food choices **(Hamish *et al*., 2019)** In addition to, our beliefs or the environment around us **(Michael *et al*., 2019)**

Moreover, food habits are affected by distress, emotional disturbance and conditions of stress, also related with unhealthy dietary patterns and poor quality of the diet **(Anton and Miller., 2005)**

Thus, feelings like sadness and fear are related with the less desire to eat **(Macht., 1999)**

Furthermore, diet and nutrition are great agents in the supporting of good health over life and individual dietary life is affected by many environmental factors as age, family status, job, education, economic level, and residence **(Chung *et al*., 2011 and Mittal, 2013).**

Consumed food prepared in a good ways and balanced diet are factors to keep healthy lifestyle. Moderated lifestyle diet is widely as satisfying the requirements of healthy nutrition **(Kastorini *et al*., 2010 & de Groot and van, 2010)**

The current study aims to recognize the impact of precautionary measures of COVID-19 on the nutritional habits of Damietta's women- Egypt.

## Subjects and Methods

In November 2019 a questionnaire to recognize nutritional habits for women was done, but on February 14, the first case of COVID-19 appeared in Egypt, so did an electronic questionnaire in June 2020 to recognize the impact of precautionary measures of COVID-19 on the nutritional habits of Damietta's women. A random sample of 591 housewives (300 Pre-test and 291 Post-test) aged 17- 83 years, selected from Damietta Governorate [262 of the sample members from rural (146 Pre-test and 116 Post-test), 329 of the sample members from urban (154 Pre-test and 175 Post-test)]. The survey was applied twice, once in November 2019 (pre-test) using a Paper questionnaire, and the other in June 2020 (post-test) using an Electronic questionnaire.

The study includes preliminary data (name- age- education level- occupation level- salary- expenditure on food compared to income) in addition to applying test to measure nutritional habits **(Corina., 2012).**

Women were split according to the education's degree to six groups: A1, A2(Illiteracy); B1, B2(Primary education); C1, C2(Secondary education);

D1, D2 (Above average qualification); E1, E2(University education) and F1, F2 (Postgraduate).

Where A1,B1,C1,D1,E1,and F1 are pre-test samples on the other hand were A2,B2,C2,D2,E2,and F2 are post-test samples .

The research tools included test to measure nutritional habits of the sample members prepared by the researcher. The validity of the test was verified by a number of specialized faculty members from the Faculty of Specific Education, Damietta University.

The electronic questionnaire was built by using Google Form application (**Laura *et al*., 2020)**

Electronic questionnaire: according to **Laura *et al*., 2020**

https://docs.google.com/forms/d/e/1FAIpQLSfEPf9j5TD5PUSsECe2kqsFAKOUipha316oZTcGWde9r8DAgA/viewform?usp=pp_url

## Statistical analysis

Collected data were subjected statistically analyzed by SPSS computer software (version 11.0). The results are presented as means +SE **(SPSS, 1999).**

## Result and discussion

Data in table (1) declares the frequency distribution of the women according to age, and Occupational level. Total of 291 women respondents, aged between 17 and 83 years, most of them from 25-35 years (28.33% and 29%) Pre-test and Post-test respectively, also, concerning Occupational level most of the women 439 were employees (79 % and 69.42%) Pre-test and Post-test respectively.

In this regard **(Naglaa *et al*., 2017)** declared that most of the married women were housewives.

**Table (1): Frequency distribution of Characteristics of the sample studied**

| | Total | Pre-test | | Post-test | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| **Age** | | | | | |
| **under 18 years** | 2 | 1 | 0.33% | 1 | 0.34% |
| **From 18-25 years** | 107 | 42 | 14.00% | 65 | 22% |
| **From 25-35 years** | 169 | 85 | 28.33% | 84 | 29% |
| **From 35-45 years** | 155 | 80 | 26.67% | 75 | 26% |
| **From 45-55 years** | 109 | 61 | 20.33% | 48 | 16% |
| **Above 55 years** | 49 | 31 | 10.33% | 18 | 6% |
| **Total** | 591 | 300 | 100.00% | 291 | 100.00% |
| **Occupational level** | | | | | |
| **Student** | 35 | 8 | 2.67% | 27 | 9.28% |
| **House wife** | 117 | 55 | 18.33% | 62 | 21.31% |
| **Employee** | 439 | 237 | 79.00% | 202 | 69.42% |
| **Total** | 591 | 300 | 100.00% | 291 | 100.00% |

Data in table (2) Frequency distribution of the women by their family's salaries.

It is declared that, most of the women in group A1 monthly income Less than 1200 pound monthly, unlike in A2 their monthly income ranged from 1200 to 3000 pound monthly. On the one hand, most of the women in groups B1, B2, C1, C2, D1, D2, E1 and E2 their monthly income ranged from 1200 to 3000 pound monthly, but, most of the women in group F2 their monthly income More than 5000 pound monthly.

After COVID-19, in group E2 and F2 observed that increase in the salaries (45.70% and 3.09%) respectively.

Most of the sample, whether in pre-test or post-test, were educated either in secondary or university education, their monthly income ranges between 1200-3000 pounds.

with regard to income **(Michael *et al*., 2020)** made an inventory of the data from (the Urban Institute's Health Reform Monitoring Survey) in USA, conducted between March 25 and April 10, 2020 to examine the effects of the coronavirus on families' employments and family income, they found that 41.5% of non-elderly adults, over 4 in 10 reported that their families lost job, or work-related income because of coronavirus, income and Job are losses widespread but prevalent increase among families of low income.

**Table (2): Frequency distribution of the women by their family's salaries.**

| Salaries / Educational level | | Less than 1200 Egyptian pound | | From 1200 to 3000 Egyptian pound | | From 3000 to 5000 Egyptian pound | | More than 5000 Egyptian pound | | Total | | Mean values ± |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % | N | % | N | % | |
| Illiteracy | A1 | 9 | 3 | 4 | 1.33 | 1 | 0.33 | 0 | 0 | 14 | 4.67 | |
| | A2 | 1 | 0.34 | 7 | 2.41 | 4 | 1.37 | 0 | 0 | 12 | 4.12 | |
| Primary | B1 | 10 | 3.33 | 13 | 4.33 | 3 | 1 | 1 | 0.33 | 27 | 9 | |
| | B2 | 2 | 0.69 | 4 | 1.37 | 3 | 1.03 | 0 | 0 | 9 | 3.09 | |
| Secondary | C1 | 24 | 8 | 66 | 22 | 10 | 3.33 | 2 | 0.67 | 102 | 34 | |
| | C2 | 18 | 6.19 | 42 | 14.43 | 8 | 2.75 | 0 | 0 | 68 | 23.37 | |
| Above average qualification | D1 | 13 | 4.33 | 32 | 10.67 | 14 | 4.67 | 3 | 1 | 62 | 20.67 | |
| | D2 | 4 | 1.37 | 38 | 13.06 | 13 | 4.47 | 5 | 1.72 | 60 | 20.62 | |
| University | E1 | 13 | 4.33 | 56 | 18.67 | 19 | 6.33 | 5 | 1.67 | 93 | 31 | |
| | E2 | 17 | 5.84 | 74 | 25.43 | 27 | 9.28 | 15 | 5.16 | 133 | 45.70 | |
| Postgraduate | F1 | 0 | 0 | 0 | 0 | 1 | 0.33 | 1 | 0.33 | 2 | 0.67 | |
| | F2 | 0 | 0 | 3 | 1.03 | 2 | 0.69 | 4 | 1.37 | 9 | 3.09 | |
| Total | Pre-test | 69 | 23 | 171 | 57 | 48 | 16 | 12 | 4 | 300 | 100 | **2.01± 0.044** |
| | Post-test | 42 | 14.43 | 168 | 57.73 | 57 | 19.59 | 24 | 8.25 | 291 | 100 | **2.22± 0.046** |

**$= was about 16 Egyptian pound**

**Pre-test (A1, B1, C1, D1, E1, F1)**

**Post-test (A2, B2, C2, D2, E2, F2)**

Data in table (3) Frequency distribution of the women by their Average of spending in food

It is declared that, most of the women in group A1 spend Less than 25% in food, unlike in group A2 spend ranged from 25%to 50% in food monthly. On the other hand, most of the women in the other groups from 25% to 50% in food monthly.

After COVID-19, the table showed that increase in average of spending in food, but not by much.

Most of the sample, whether in pre-test or post-test, were educated either in secondary or university education, their average of spending in food between 25%to 50% from the salary increased from 64.33% to 68.38% respectively.

In this regard, **(Michael *et al*., 2020)** found that 30.6% of adults reported that they reduced spending on food. Also, adults who lost work or income, 46.5% reduced their spending on food

**Table (3): Frequency distribution of the women by their Average of spending in food**

| Average of spending in food monthly / Educational level | | Less than 25% | | From 25%to 50% | | More than 50% | | Total | | Means values ± |
|---|---|---|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % | N | % | |
| Illiteracy | A1 | 6 | 2 | 5 | 1.67 | 3 | 1 | 14 | 4.67 | |
| | A2 | 0 | 0 | 12 | 4.12 | 0 | 0 | 12 | 4.12 | |
| Primary | B1 | 8 | 2.67 | 19 | 6.33 | 0 | 0 | 27 | 9 | |
| | B2 | 3 | 1.03 | 6 | 2.06 | 0 | 0 | 9 | 3.09 | |
| Secondary | C1 | 21 | 7 | 61 | 20.33 | 20 | 6.67 | 102 | 34 | |
| | C2 | 13 | 4.47 | 49 | 16.84 | 6 | 2.06 | 68 | 23.37 | |
| Above average qualification | D1 | 8 | 2.67 | 39 | 13 | 15 | 5 | 62 | 20.67 | |
| | D2 | 8 | 2.75 | 42 | 14.43 | 10 | 3.44 | 60 | 20.62 | |
| University | E1 | 8 | 2.67 | 67 | 22.33 | 18 | 6 | 93 | 31 | |
| | E2 | 18 | 6.19 | 83 | 28.5 | 32 | 11 | 133 | 45.07 | |
| Postgraduate | F1 | 0 | 0 | 2 | 0.67 | 0 | 0 | 2 | 0.67 | |
| | F2 | 1 | 0.34 | 7 | 2.41 | 1 | 0.34 | 9 | 3.09 | |
| Total | Pre-test | 51 | 17 | 193 | 64.33 | 56 | 18.67 | 300 | 100 | **2.02 ±0.035** |
| | Post-test | 43 | 14.78 | 199 | 68.38 | 49 | 16.84 | 291 | 100 | **2.05 ±0.034** |

**Pre-test (A1, B1, C1, D1, E1, F1)**
**Post-test (A2, B2, C2, D2, E2, F2)**

Data in table (4) declares the frequency distribution of the women according to nutritional habits.

Regarding to, nutritional habits most of the women in all groups had poor nutritional habits (79% and 80.41%) Pre-test and Post-test respectively.

According to medium nutritional habits after COVID-19, percentage of increase in women were (3.17%) in groups A2, C2, D2, E2, and F2, but decreased in B2, the results showed also, good nutritional habits decrease after COVID-19 by (4.58%).

There weren't any women in groups A1, A2, B1, and B2 have good nutritional habits

Furthermore **(Laura *et al*., 2020)** showed that regarding to changes during the COVID-19 lockdown in lifestyle, most of the people elucidate no change in their nutritional habits (46.1%), but, 16.7% and 37.2% feel to have amendment their habits or made bad habits, respectively.

**Table (4): Frequency distribution of nutritional habits and difference between means**

| Nutritional habits / Educational level | | Poor nutritional habits | | Medium nutritional habits | | Good nutritional habits | | Total | | Mean values ± |
|---|---|---|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % | N | % | |
| Illiteracy | A1 | 12 | 4 | 2 | 0.67 | 0 | 0 | 14 | 4.67 | |
| | A2 | 9 | 3.09 | 3 | 1.03 | 0 | 0 | 12 | 4.12 | |
| Primary | B1 | 22 | 7.33 | 5 | 1.67 | 0 | 0 | 27 | 9 | |
| | B2 | 8 | 2.75 | 1 | 0.34 | 0 | 0 | 9 | 3.09 | |
| Secondary | C1 | 87 | 29 | 9 | 3 | 6 | 2 | 102 | 34 | |
| | C2 | 52 | 17.87 | 14 | 4.81 | 2 | 0.69 | 68 | 23.37 | |
| Above average qualification | D1 | 48 | 16 | 8 | 2.67 | 6 | 2 | 62 | 20.67 | |
| | D2 | 49 | 16.84 | 8 | 2.75 | 3 | 1.03 | 60 | 20.62 | |
| University | E1 | 67 | 22.33 | 17 | 5.67 | 9 | 3 | 93 | 31 | |
| | E2 | 10 | 3.44 | 21 | 7.22 | 2 | 0.69 | 133 | 45.70 | |
| Postgraduate | F1 | 1 | 0.33 | 0 | 0 | 1 | 0.33 | 2 | 0.67 | |
| | F2 | 6 | 2.06 | 2 | 0.69 | 1 | 0.34 | 9 | 3.09 | |
| Total | Pre-test | 237 | 79 | 41 | 13.67 | 22 | 7.33 | 300 | 100 | **1.29 ±0.035** |
| | Post-test | 234 | 80.41 | 49 | 16.84 | 8 | 2.75 | 291 | 100 | **1.22 ±0.028** |

**Pre-test (A1, B1, C1, D1, E1, F1)**
**Post-test (A2, B2, C2, D2, E2, F2)**

## Conclusion and Recommendation

The results declared that most of the participants in Pre-test were graduated only from secondary level, and in Post-test were university education level, also most of them were employees, according to their family's salaries; after COVID-19, in group A2, B2, and E2 observed that increase in the salaries, in spite of, decrease in the salary of the women in group F2, also, regarding to their Average of spending in food after COVID-19, they increase in average of spending in food, but not by much, Relatively nutritional habits; most of the women in all groups had poor nutritional habits. The study recommended that, more studies should be conducted during the event of the continued presence of (Covid-19) and the precautionary measures should be limited to reduce food intake, and avoid bad nutritional habits.

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# أثر الإجراءات الاحترازية لمرض كوفيد -19 على العادات الغذائية للسيدات في مصر

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**الملخص**

تهدف هذه الدراسة إلى التعرف على تأثير الإجراءات الاحترازية لمرض كوفيد – 19 على العادات الغذائية للسيدات في محافظة دمياط. أثناء إجراء دراسة عن العادات الغذائية للسيدات في نوفمبر 2019، تم الإعلان عن أول حالة إصابة بفيروس كورونا في مصر في 14 فبراير. ولما كان البقاء في المنزل يؤدى لتغير وخلل في الأنشطة اليومية. لذا تم إعادة إجراء نفس الاستبيانً إلكترونيًا في يونيو 2020 للمقارنة مع الجزء الأول، وتكونت عينة الدراسة من 591 امرأة (300 امرأة قبل دخول فيرس كورونا و291 امرأة بعد دخول فيرس كورونا). وتضمن الاستبيان البيانات الاتية (الاسم – السن – مكان الإقامة – درجة التعليم – الحالة الوظيفية – الدخل الشهري – نسبة الانفاق على الغذاء مقارنة بالدخل) بالإضافة إلى إجراء اختبار لقياس العادات الغذائية، قبلي تم اجرائه في شهر نوفمبر 2019 باستخدام استبيان ورقي، وبعدي تم اجرائه في شهر يونيو 2020 باستخدام استبيان الإلكتروني. وتم تقسيم السيدات حسب درجة تعليمهن إلى ست مجموعات. واسفرت النتائج المتحصل عليها في الدراسة على أن غالبية السيدات سواء في الاختبار القبلي أو البعدي ممن يتراوح انفاقهن على الطعام من 25-50 % ازدادت نسبتهن في البعدي أثناء فترة الإجراءات الاحترازية عن القبلي من64.33٪ إلى 68.38٪. وفيما يتعلق بعادات الأكل، كان لدى معظم السيدات في جميع المجموعات عادات غذائية خاطئة بنسبة (79٪ و80.41٪) سواء في الاختبار القبلي او البعدي على التوالي.

**وتوصي الدراسة:** بضرورة اتباع الإجراءات الاحترازية في اضيق الحدود لتأثيراتها السلبية وخاصة في زيادة المتناول من الأطعمة وأثره السلبي على صحتهن مع إجراء المزيد من الدراسات وخاصة في حالة استمرار وجود كوفيد – 19.

**الكلمات المفتاحية:** *فيروس كورونا – مستوى التعليم – المستوى الوظيفي – الدخل الشهري – العادات الغذائية.*