The Impact of Precautionary Measures of COVID-19 on the Egyptian Women Nutritional Status

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مجلة البحوث في مجالات التربية النوعية

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The Impact of Precautionary Measures of COVID-19 on the Egyptian Women Nutritional Status

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Abstract

Social distancing important to reduce the risk of COVID-19. This study was carried out on 591 women (300 Pre-test and 291 Post-test) in Damietta Governorate aria, but suddenly, announced the first case of COVID–19 infections in February 14, 2020 in Egypt. so, study to estimate the impact of precautionary measures of COVID-19 in nutritional status should do to compare it with pre-test. Data were taken from the individuals of the sample. The study included habits related to nutrition. Body mass index (BMI) were measured, also blood hemoglobin levels. The (Pre-test) were made in November 2019 using a paper questionnaire, while, the (post-test) was made in June 2020 using an electronic questionnaire. The pre-test and Post-test sample was divided to three groups for each (A-A1, B-B1, C-C1 respectively). Results declared that most of the women in group A, A1 were overweight. While most women in groups B, B1, C, and C1 were obese, most of the women 355 had normal blood hemoglobin. Then, 150 mild anemia. In conclusion, according (BMI), most of the women were obese, overweight and obesity were increased after COVID-19. Also, most of the women had normal blood hemoglobin, then, mild anemia the result draws attention that moderate anemia and severe anemia were increased after COVID-19

Keywords: Egyptian precautionary measures, obesity, anemia, Egyptian behaviours and habits.

Introduction

Frist case of COVID–19 infections was discovered in February 14, 2020, in Egypt. Then on March 13, 2020, the prime Minister directive to suspend studies in all levels of education as well as all other life activities for different periods as a precautionary and preventive measure to prevent the spread of the Coronavirus in the country, Also, maintaining personal hygiene instructions from washing hands and all general hygiene requirements **(The Arab Republic of Egypt., 2020),** since February 14, 2020, when the first case of COVID – 19 infections appeared, the cases numbers were increased to exceed 7000 cases by May 2020. With a mortality rate of 6.4% **(Health., 2020).**

Regarding Coronavirus pandemic, since 2019 has spread to every continent **(Ali *et al.*, 2020).** In this regard, Coronavirus is a respiratory disease caused by the novel coronavirus, SARS-CoV-2, that has reached pandemic status **(William and Carlos., 2020).** On the one hand, health is a fundamental concept, in all people's habitual lives. It is affected by habits, attitudes, affairs, believes as well as social and physical environment **(Mahmoud and Taha., 2017).**

Obesity is very important to seed appropriate nutritional behavior from the earliest years of life. In this regard, parents play an essential model role, for their children **(Grier *et al.*, 2007)** whereas, Parents greatly influence their children's beliefs in various fields, especially in their eating habits **(Corina., 2012)**. Then women's enough nutritional status is essential for good health and increased ability to work because of more of girls married under 18 years **(Black *et al.*, 2008, and Megan *et al.*, 2017)**. Moreover, Anthropometric tests are an important tool in any research to measure nutritional condition and health. Also, used extensively to define the nutritional status and health of communities **(Waterlow *et al.*, 1977)**. Depending on the World Health Organization (WHO), in Egypt, 46 percent of adult women are obese **(Austin et al., 2011)** Furthermore, a study in Kuwait indicates that increased rates of

overweight and obesity during the COVID-19 due to the increased prevalence of (undesirable) food habits conducive to outbreak **(Husain and Ashkanani., 2020).**

According iron deficiency anemia (IDA) is the most popular nutritional Shortage in both developed and developing countries **(WHO., 2001)**. Also, anemia is caused by iron deficiency due to not enough intake of iron from the diet **(Mikki *et al*., 2011).** Moreover, it may be because of factors like reduced absorption or infections by intestinal helminths, which cause problems with iron absorption inside the intestinal tract **(Barduagni *et al*., 2004)**

In addition to social isolation during SARS-CoV-2 pandemic had an impact on behaviours. Also, it was found an increase a worsening of eating habits, especially among women **(Gianluigi *et al*., 2020)**.

The objective of the current study was to measure the impact of precautionary measures of COVID-19 on Egyptian women's nutritional status- Damietta Governorate- Egypt.

Subjects and Methods

A random sample of 591 women (300 Pre-test and 291 Post-test) aged 17- 83 years old, selected from Damietta Governorate. The sample members were taken from rural and urban. The sample was divided into three groups: first group (<30years old) was (A, A1, 94 pre-test and 94 Post-test women resp.), the second group from (30 to 45 years old) was (B, B1, 114 pre-test and 104 Post-test women resp.), and third group (>45 years old) was (C, C1, 92 pre-test, and 93 Post-test women resp.) The survey was applied in two stages, in November 2019 (pre-test) using a Paper questionnaire, and the other in June 2020 (post-test) using an electronic questionnaire.

This study includes preliminary data about the Social status of these women was 92.78 married, 1.3 divorced, and 5.84 widow. Also Average of their children were 2.3 for the Pre-test and 2.2 for Post-test

In addition to the test, Height and weight were measured to calculate BMI according to **Eknoyan and Quetelet (2008)**, and blood hemoglobin level.

Body mass index

BMI (kg/m^2) was used to classify into categories of Underweight (BMI < 18.5 kg/m^2), Normal (18.5 kg/m^2 ≤ BMI < 25 kg/m^2), Overweight (25 kg/m^2 ≤ BMI < 30 kg/m^2), and Obese (BMI ≥ 30 kg/m^2) **(National Heart, Lung, and Blood Institute., 1998).**

Anemia classification

The degrees of anemia were classified as normal (Hb>12 g/dL), (mild (Hb 10 to < 12 g/dL), moderate (Hb 7 to < 10 g/dL), and severe (Hb< 7 g/dL) (**Chaudhary and Dhage., 2008).**

Electronic questionnaire was built by using Google Form application https://docs.google.com/forms/d/e/1FAIpQLSfEPf9j5TD5PUSsECe2kqsFAKOUipha316oZTcGWde9r8DAgA/viewform?usp=sf_link (**Laura *et al*., 2020)**.

Result and discussion

Data in Table(1) and Figure (1) declares the distribution frequency of behaviors and habits related to balanced nutrition

According to behaviors and habits, women persevere for eating breakfast decreased at some point in the post-test than the pre-test (47.1% and 52.7%) respectively. Also, those who skipped breakfast increased in the post-test than the pre-test (7.9% and 4.67%) respectively. Regarding eating three meals daily there was a clear decrease at some point in the post-test more than pre-test (32.65% and 43%) respectively. Regarding eating green vegetables, data showed a decrease at some point in the post-test than pre-test (40.55% and 45.33%) respectively. Also, those who don't eat green vegetables increased in the post-test than the pre-test (13.1% and 10%) respectively. While, eating with groups increased significantly in the post-test than the pre-test (46.74% and 13.7%) respectively. According to eating sweets,

pre-test increased than post-test (23% and 17.87%) respectively. Concerning the follow-up weights, it was monitoring an increase in the weight in pre-test than the post-test (28.7% and 25.1%) respectively. According to the reducing food when feeling weight exceed, the percentage of post-test reduced obviously than the pre-test (16.2% and 38.7%) respectively. Moreover, doing daily physical activities, increased significantly in pre-test than post-test (42% and 16.2%) respectively.

In this regard **Nayera *et al.*, 2015** observed that most Egyptian women 81.9 % eating with family at home, 60% of the women skipped their breakfast meal, while 39.1% had their breakfast, 94.2 % had taken the main meal for 3 or more times/week, but the rate of vegetable and fruit consumption was low, and 79% of the women have eaten sweets 3-4 times/week.

Also, **Gianluigi *et al.*, 2020** conducted to 7,847 person. Most of them are women (71.3%), live in Northern Italy. 56% reported they had reduced the time for physical activity. regarding to eating habits (29.9%) reported that increasing unhealthy food.

Table (1): Frequency distributions of behaviors and habits related with balanced nutrition

Behaviors and habits	Always		sometimes		Rarely	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
1) Persevere for eating breakfast	52.67%	47.1%	42.67%	45%	4.67%	7.9%
2) Commit to eating three meals daily	43%	32.65%	47.3%	56.7%	9.7%	10.65%
3) Make sure to eat green vegetables	45.33%	40.55%	44.67%	46.4%	10%	13.1%
4) Eating with groups	13.7%	46.74%	38.3%	40.55%	48%	12.71%
5) Eating sweets	23%	17.87%	47%	47.42%	30%	34.71%
6) make sure to monitor weight	28.7%	25.1%	38%	45%	33.3%	29.9%
7) Reduce food when weight exceeds	38.7%	16.2%	37.3%	49.8%	24%	34%
8) Take care to do daily physical activity	42%	16.2%	42.7%	51.55%	15.3%	32.3%

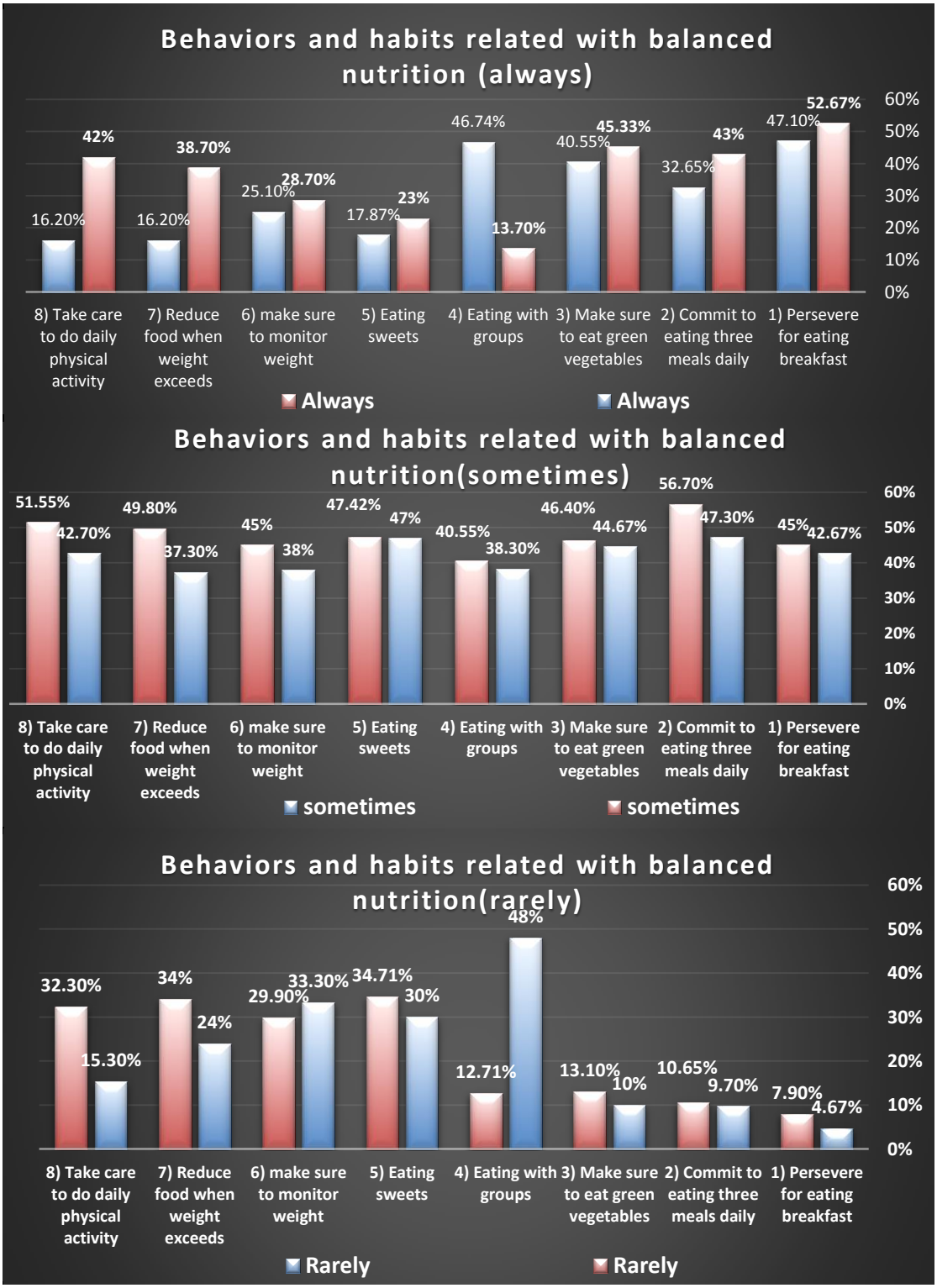


Fig (1): frequency distribution of behaviors and habits related with balanced nutrition.

Data in Table (2) and Figure (2) declares the frequency distribution of the women's BMI according to age.

According to BMI, most of the women in group A, A1 were overweight (40.43% and 41.49%) Pre-test and Post-test respectively. On the other hand, most women in groups B, B1, and C, C1 were obese.

Furthermore, most of the underweight women (4.26%) were in-group A1, most of the normal-weight women (35.11%) were in-group A, most of the overweight women (42.31%) were in-group B1, and most of the obese women (69.89%) were in-group C1, this result draws attention that most of the women gained weight after COVID-19

Relatively most women were obese (44% and 45%) Pre-test and Post-test respectively. Then, overweight (35.67% and 36.43%) Pre-test and Post-test respectively.

The results in table 2 draw attention that all the underweight women were in group A1, while, no women in group A or group A1 were in (Obesity III).

These findings are in agreement with **Nayera *et al* (2015)** who found that out of 138 females were overweight and obese with an average age of 21-63 years in this study (42.8% were overweight and 57.2% were obese) .

Also, an agreement with these results was by **Naglaa *et al* (2017)** whose declared that most of the overweight women were in group l (21-30 years) 39.12%, while most of the obese women were in group 2 and group3 (34-48,45- 67 years) 53.57%, and 71.43% respectively.

These findings are not in agreement with **Laura *et al* (2020);** in Italy, after COVID-19 they found that most of their study about men and women were normal weight.

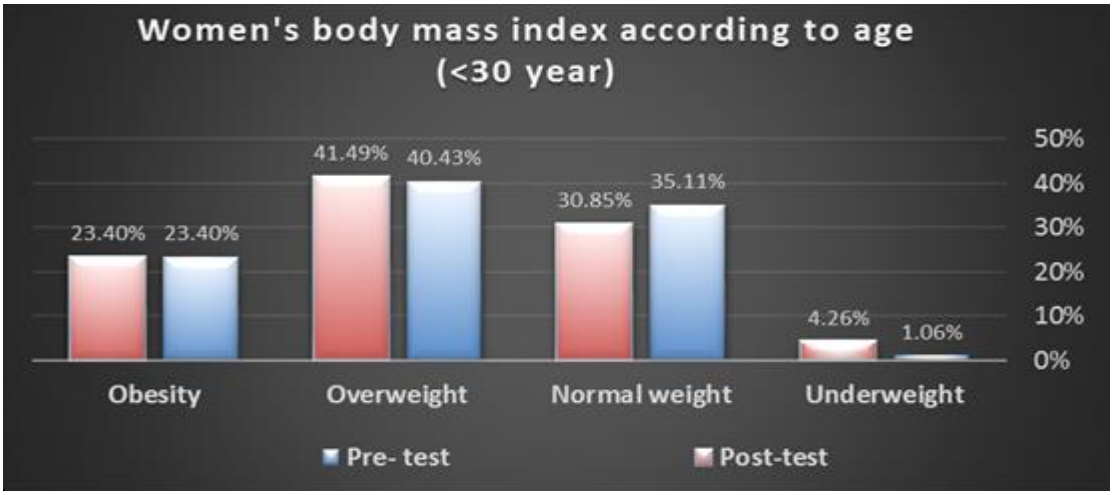
Table (2): Frequency distribution of BMI and difference between means according to age.

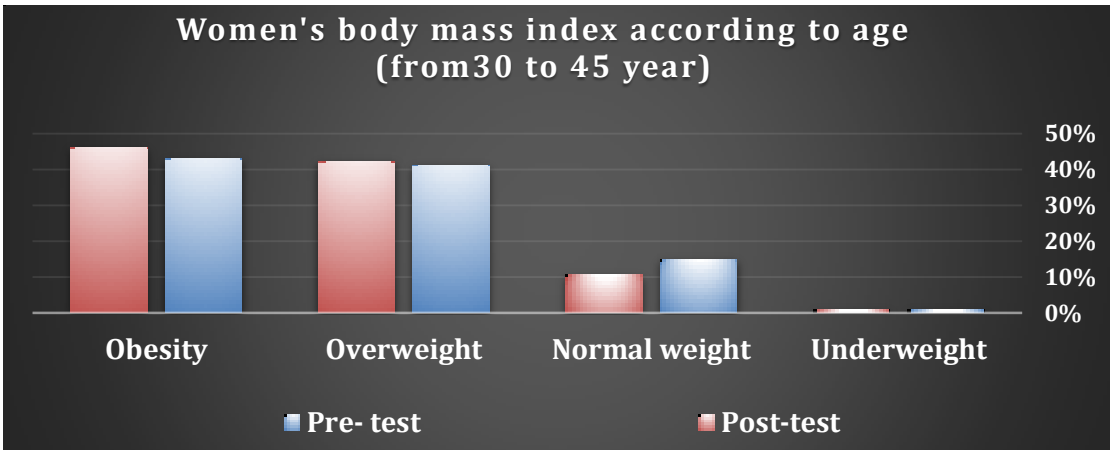
Body mass index		Women (<30year)				Women from (30 to 45 year)				Women (>45 year)			
		A		A1		B		B1		C		C1	
		N	%	N	%	N	%	N	%	N	%	N	%
Underweight		1	1.06%	4	4.26%	1	0.88%	1	0.96%	0	0%	0	0%
Normal weight		33	35.11%	29	30.85%	17	14.91%	11	10.58%	9	9.78%	5	5.38%
Overweight		38	40.43%	39	41.49%	47	41.23%	44	42.31%	21	22.83%	23	24.73%
Obesity	Obesity I	19	20.21%	19	20.21%	34	29.82%	44	42.31%	37	40.22%	33	35.48%
	Obesity II	3	3.19%	3	3.19%	12	10.53%	10	9.62%	18	29.03%	19	20.43%
	Obesity III	0	0%	0	0%	3	2.63%	4	3.85%	7	7.61%	3	3.23%
Total Obesity		22	23.4%	22	23.40%	49	42.98%	48	46.15%	62	67.4%	65	69.89%
Total		94	100%	94	100%	114	100%	104	100%	92	100%	93	100%

A, A1 is Pre and Post-test resp. to women less than 30 years old

B, B1 is Pre and Post-test resp. to women 30-45 years old

C, C1 are Pre and Post-test resp. to women more than 45 years old





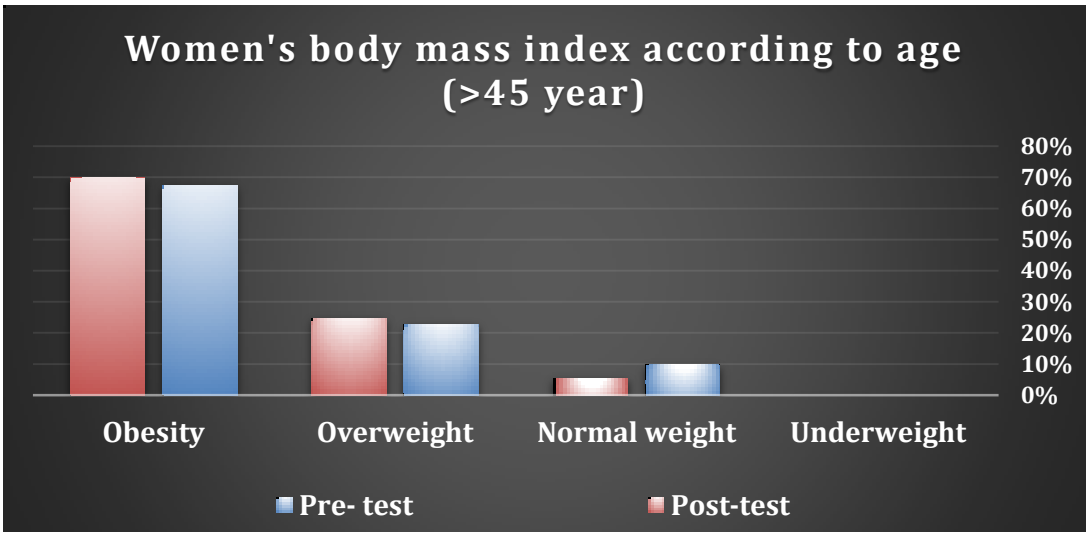


Fig (2): Frequency distribution of BMI and difference between means according to age

Data in Table (3) and Figure. (3) declares the distribution frequency of women's Blood hemoglobin. according to age.

According to blood hemoglobin, most of the women in all groups were normal blood hemoglobin. But, in group A, A1 observed that significant increase in mild and moderate anemia in A1 than A, also, in group B, B1 observed that increase in moderate anemia and Severe anemia in group B1 than B, On the one hand, in group C, C1 observed that significant increase in normal blood hemoglobin C1 than C.

Regarding blood hemoglobin, most of the women 355 had normal blood hemoglobin (61.33% and 58.76%) Pre-test and Post-test respectively. Then, 150 mild anemia (25.67% and 25.09%) Pre-test and Post-test respectively.

The results also draw attention that moderate anemia and severe anemia were increased after COVID-19

In this regard **Ghada *et al* (2007)** declared that most of the mothers ≤ 20 y have anemia 37.04 %. Also, most of the mothers ≥ 20 -≤ 60 y have anemia > 43.0 % .

According to, **Soliman *et al* (2007)** who stated that Iron deficiency anemia is the most common of anemia related to malnutrition. It is known as a low hemoglobin Hb concentration. It is considered an important problem in Egypt.

Table (3): frequency distributions of blood hemoglobin and difference between means according to age.

Blood hemoglobin	Women (<30year)				Women from (30 to 45 year)				Women (>45 year)			
	A		A1		B		B1		C		C1	
	N	%	N	%	N	%	N	%	N	%	N	%
Normal	**61**	**64.9%**	**63**	**53.85%**	**76**	**66.67%**	**73**	**61.86%**	**47**	**51.09%**	**35**	**62.5%**
Mild anemia	**23**	**24.46%**	**34**	**29.06%**	**25**	**21.93%**	**25**	**21.19%**	**29**	**31.52%**	**14**	**25%**
Moderate anemia	**9**	**9.57%**	**19**	**16.24%**	**13**	**11.4%**	**16**	**13.56%**	**15**	**16.30%**	**6**	**10.71%**
Severe anemia	**1**	**1.06%**	**1**	**0.85%**	**0**	**0%**	**4**	**3.39%**	**1**	**1.09%**	**1**	**1.79%**
Total	**94**	**100%**	**117**	**100%**	**114**	**100%**	**118**	**100%**	**92**	**100%**	**56**	**100%**

A,A1 are Pre and Post test resp. to women less than 30 years old

B,B1 are Pre and Post test resp. to women 30-45 years old

C,C1 are Pre and Post test resp. to women more than 45 years old

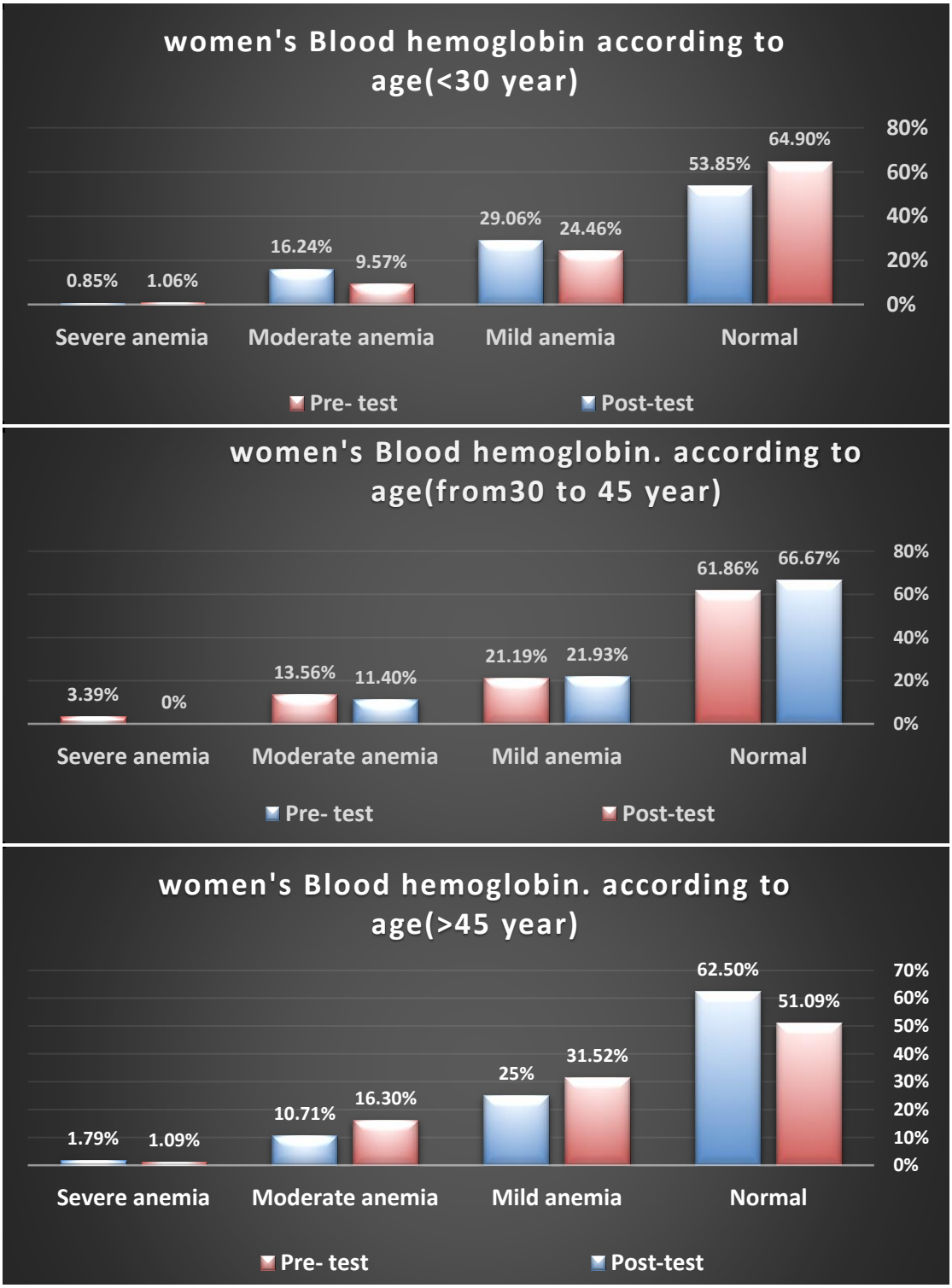


Fig. (3): Frequency distribution of blood hemoglobin and difference between means according to age.

Conclusion

Regarding BMI, most of the women were obese, and then overweight, result draws attention that overweight and obesity were increased after COVID-19, to some extent. According to level blood hemoglobin, most of the women had normal blood hemoglobin, then, mild anemia the result draws attention that moderate anemia and severe anemia were increased after COVID-19, but not too much. Also, this study recommended that, Women's awareness need more aware of nutrition knowledge of the risks of obesity and anemia and how to avoid them to meet life pressures, in this regared, should make more researches in the Precautionary Measures of COVID-19 to make sure of its effect on the nutritional status.

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أثر الإجراءات الاحترازية لمرض الكورونا (كوفيد -19) على الحالة الغذائية للسيدات المصريات

د.علا سحلول

الملخص

يعد التباعد الاجتماعي من أهم الضروريات لتجنب الاصابه بالكورونا. أجريت هذه الدراسة على 591 سيدة (300 في الاختبار القبلي و 291 في الاختبار البعدي). تم عمل اختبار للتعرف على الحالة الغذائية للسيدات بمحافظة دمياط ، ولكن فجأة تم الإعلان عن أول حالة إصابة بالفيرس في 14 فبراير 2020 في مصر وبالتالي تم إجراء دراسة لتقدير تأثير التدابير الاحترازية على الحالة الغذائية للسيدات لمقارنتها بالدراسة السابقة. البيانات المستخدمة شملت الدراسة السلوكيات والعادات المتعلقة بالتغذية، تم قياس الطول والوزن لحساب مؤشر كتلة الجسم وكذلك تقدير مستويات الهيموجلوبين في الدم. تم إجراء (الاختبار القبلي) في نوفمبر 2019 باستخدام استبيان ورقي ، بينما تم إجراء الاختبار الآخر (الاختبار البعدي) في يونيو 2020 باستخدام استبيان إلكتروني. تم تقسيم عينة الاختبار إلى (أقل من 30 عام ،من 30-45عام ، أكثر من 45 عامًا على التوالي). وأظهرت النتائج أن معظم النساء في المجموعة الأولى يعانين من زيادة الوزن، بينما السيدات في المجموعات الثانية والثالثة يعانين من السمنة. كما أن 355 سيدة لديهن مستوى هيموجلوبين دم طبيعي (61,33% و 58,76%) في الاختبارين القبلي والبعدي على التوالي. ثم 150 سيدة يعانين من أنيميا بدرجة خفيفة (25,67% و 25,09%) في الاختبارين القبلي والبعدي على التوالي. الخلاصة ، وفقًا

لمؤشر كتلة الجسم ، كانت معظم النساء يعانون من السمنة المفرطة ، ثم من زيادة الوزن كما أن الزيادة في الوزن والسمنة زادة بعد انتشار فيرس كورونا. كما أن معظم السيدات كان لديهن هيموجلوبين طبيعي ، ثم أنيميا بدرجة خفيفة ، والنتيجة تلفت الانتباه إلى أن الأنيميا الخفيفة والمتوسطة زادت بعد فيرس كورونا زيادة بسيطة

الكلمات المفتاحية: الإجراءات الاحترازية المصرية– السمنة – الانيميا– العادات والسلوكيات للمصريين