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### THE RELATIONSHIP BETWEEN PERSONALITY PATTERNS, OBESITY AND OVERWEIGHT AMONG SAUDI WOMEN DURING THE COVID-19 PANDEMIC: A COMPARATIVE STUDY

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#### **ABSTRACT**

The aim of the research is to identify the prevalence of obesity and overweight, with the personality type prevalent among a sample of Saudi women and according to the marital status and to identify the correlation between the prevalence of obesity and overweight, with the nature of the prevailing personality type and according to the social status. The sample consisted of (2923) Saudi women, of which (1345) married women made up a percentage (46.01%), (1578) unmarried girls constitute (53.98%) of the total research sample. Weight and height were measured, and BMI classifications were obtained based on WHO indicators. Then, the research sample responded to the Iznik list of personality.

The results indicated an increase in the prevalence of obesity and overweight among married women compared to unmarried girls, by (53.08%), (14.72%), (32.53%), (13.37%), respectively, and it was found that there is a significant increase in the percentage of Married women with a balanced personality type at a rate of (68.84%), a decrease in their emotional personality pattern by (31.15%), an increase in the percentage of extroverted personality among them by (62.37%), and a decrease in the percentage of introverted personality by (37.62%), While it was also found that there is a decrease in the proportion of balanced personality among unmarried girls compared to married women by (55.83%), and an increase in the percentage of the emotional personality type among them by (44.16%), and it was also found that there is a decrease in the percentage of The extroverted personality type and the high percentage of the introverted personality type in proportions respectively (39.35%) and (60.64%). With regard

to the relationship between obesity and personality type, it was found that the percentage of introverted personality type is lower among married women who are obese or overweight. Existence of the whale pattern the equilibrium testis, while the relationship was the opposite of that for unmarried women and those with obesity or overweight, as they had a higher incidence of introverted personality type and a lower percentage of equilibrium personality type. In light of the findings and in light of the Corona pandemic and the commitment of women at home to not be exposed to the virus and the lack of sports activities, it was possible to recommend the necessity of finding sports programs for practicing sports and physical activity for women in general, especially those unmarried women, because obesity and overweight have very negative effects on personality style. And their mental health.

## INTRODUCTION

Numerous studies that examined the subject of personality and its characteristics and the factors affecting it have indicated that it is a dynamic and organized group of the personality and characteristics of the individual and personal behavior patterns, which include attitudes or trends, patterns of thinking, feelings, actions and reactions to opportunities, as well as the tension resulting from daily interaction with the external human surroundings, whether Family, community, or even educational academic.<sup>[1-5]</sup>

In December 2019, an outbreak of Novel beta coronavirus, named Novel CORONAVIRUS (SARS-COV-2) in Wuhan city, Hubei province, China. The worldwide epidemic affecting all ages and more than six million infections. The Coronavirus (Covid-19) manifestations consist of fever, cough, dyspnea, myalgia, headache and diarrhea, transmission through respiratory droplets when an infected person coughs or sneezes. The elderly is at greater risk for complications of the epidemic virus, together with people with chronic diseases and those with a compromised immune system as in the case of cancer or HIV. It is recommended for the elderly, Regular physical activity for staying healthy, with moderate-intensity exercise and balanced food intake with supplements to reduce feelings of stress and boost mental and physical performance and general health and muscle and bone healing and immunity.<sup>[6]</sup>

Numerous reference studies have also indicated that there is a relationship and an effect to the personality type prevailing in individuals and between a group of healthy behaviors they have, especially the practice of physical and sports activity, the nature of dietary habits, in addition to the prevalence of obesity among them.<sup>[7-11]</sup>

Some other studies have also shown that personality type is a factor affecting many diseases, especially those related to chronic diseases such as diabetes, high blood pressure disease and heart disease.<sup>[12-16]</sup>

Jacobs (2010) & Spielberger)<sup>[4]</sup>, concluded through a study conducted to investigate the relationship between smoking and the personality type prevalent in a sample of doctors, concluded that male smokers have a higher rate of

Neuroticism, compared to non-smokers, and that Female smokers have a lower incidence of neurotic and psychotic personality patterns compared to non-smokers or those who quit smoking. Cornelia et al., 2017<sup>[2]</sup> also found a relationship between personality type, obesity prevalence rate, tobacco consumption, and physical activity. Which indicates the effect of personality style on a group of healthy behaviors in individuals, and through a reference study (Rodney, & Kathryn 2015)<sup>[9]</sup>, the existence of an effect of personality style in individuals on the extent of their orientation for practicing sports activity, and it was found that individuals practicing sports activity have a lower percentage. The presence of the neurotic personality and the increase in their equilibrium personality level, also (Wilson et al., 2015)<sup>[10]</sup> found that practicing sports activity may help reduce the presence of the neurotic personality pattern among college girls, and it helps to increase the presence of For the extraversion between them.<sup>[17, 18]</sup>

Markus et al. (2014)<sup>[12]</sup> concluded that there is a strong correlation between the incidence of coronary heart disease resulting from stroke and the pattern of neurotic personality, and that there is a decrease in the incidence of these diseases among individuals with Extroverted personality and those with a high level of mental health, and in another study he conducted (Meei et al., 2017)<sup>[14]</sup>, the results showed a correlation between the neurotic and emotional personality type that is not balanced and between high rates of depression, anxiety and stress in addition to the close association with increased rates of disease. Heart and with dangerous fats in the blood especially low-density lipoprotein. Low-density lipoprotein and hypertriglyceridemia, and some studies have also linked personality type, mental health, quality of life, and social adjustment to the environment.<sup>[19]</sup>

(2015, Margarita et al.)<sup>[20]</sup> Indicated a rise in symptoms of depression, anxiety, tension, and a decrease in the level of social adaptation in individuals of the type of unbalanced neurotic personality, in addition to the presence of high indicators of many diseases, and in an analytical study of studies conducted on the effect of personality type on the level of health Mental (Johan, & Floortj 2010)<sup>[3]</sup> found that individuals characterized by depressive and neurotic personality have a low level of mental and psychological health and have increased symptoms of depression, tension, disorder and stress, and a high level of psychological stress, in addition to a low level of social adjustment for them.<sup>[21]</sup>

Due to the importance and influence of personality style on many daily behaviors, some studies have linked personality style with eating habits or eating disorders.

(2016. Andrew & Ryan)<sup>[11]</sup> indicated that individuals with an extroverted personality type and socially compatible with their surroundings have a set of positive health behavioral attitudes and trends related to eating breakfast, while it was found that individuals with neurotic personality type and low social compatibility have negative unhealthy behaviors towards breakfast.

Obesity and its infection are considered to be of high risk to health in its various forms, whether physical or psychological. Several studies have linked obesity to cardiovascular disease, diabetes and high blood pressure.<sup>[22-24]</sup>

In addition, there is a close relationship between obesity and high levels of dangerous blood fats (hyperlipoproteinemia), which cause atherosclerosis, and thus the occurrence of heart attacks and strokes.<sup>[6, 25-28]</sup>

Some studies have also indicated a relationship between obesity and some types of cancer, especially breast, ovarian, and endometrial cancer in obese women.<sup>[6, 29-32]</sup>

The effect of obesity is not limited to health problems, but goes beyond that to the negative impact on the level of mental health (Jan et al., 2017)<sup>[33]</sup>. Studies have linked obesity in women with a low level of social adjustment and an inferior view of the body in what is known as the concept of contempt of the body (Al-Arjan and Deeb, 2015)<sup>[34]</sup> In addition to the low level of self-confidence and self-concept, and some studies have linked obesity with some social problems, which may be represented by a decrease in the chances of marriage for obese women, and this matter may lead to a decrease in their mental health.<sup>[35-37]</sup>

Regarding the prevalence of obesity among women in society, many studies have reported a significant increase in the prevalence of obesity and overweight.<sup>[27, 34, 38-40]</sup>

This is in addition to what has emerged from the results of some studies that there is a significant decrease in the level of practicing health-promoting sports activity, and therefore due to the seriousness of the spread of obesity and its negative effects on the individual's physical and psychological health and the level of social adaptation, especially among females, and what may accompany negative changes in the personality style of Women, researchers have conducted this research due to its scientific and practical importance.

## **RESEARCH PROBLEM**

The research problem arises in the seriousness of the spread of obesity and its health, social and psychological complications, especially with regard to the effect on the personality type of females, the fact that females are more susceptible to the spread of obesity than males, and the problem of research lies in answering the following questions which form the general framework of the research:

1. What is the prevalence of obesity, overweight, normal weight and underweight, and does it vary according to the marital status of a sample of Saudi women in light of the Corona pandemic?
2. What is the personality type prevailing among a sample of Saudi women, according to the marital status?

3. What is the nature of the relationship between personality type and body mass index classifications of a sample of Saudi women according to marital status?

**Research Aims:**

The aim of the research is to identify the following objectives:

1. The prevalence of obesity, overweight, normal weight and underweight among a sample of Saudi women in light of the Corona pandemic, and according to marital status.
2. The personality type prevailing among a sample of Saudi women, according to the marital status.
3. The relationship of personality type to the spread of BMI classifications of a sample of Saudi women in light of the Corona pandemic, and according to marital status.

**Search procedures:**

Research Methodology:

The researcher used the descriptive approach in one of its forms, which is the interrelationships.

**Research Community and Sample:**

The research community consisted of Saudi women, both married and unmarried, and the research sample consisted of a total of (2923) Saudi women who were randomly selected and according to the marital status of the various social strata, and Table (1) shows the nature of their characteristics.

**Table (1)** The demographic characteristics of the research sample.

Variables	Married		Unmarried		All sample	
	N= 1550		N= 1670		N= 3220	
	Mean	SD	Mean	SD	Mean	SD
Age (years)	38.22	1.62	37.21	1.53	37.5	1.58
Weight (kg)	76.12	18.2	70.37	15.4	74.52	16.22
Length (cm)	1.66	0.11	1.63	0.1	1.65	0.11
BMI is m2	29.5	5.04	25.1	6.73	27.73	7.31
Education	number	%	number	%	number	%
Primary	191	12.32	450	26.95	641	19.91
Junior high	95	6.129	213	12.75	308	9.57
high school	484	31.23	642	38.44	1126	34.97
Diploma	238	15.35	130	7.784	368	11.43
BSC	341	22	91	5.449	432	13.42
Masters	201	12.97	144	8.623	345	10.71
the work	number	%	number	%	number	%
Yes, currently	564	36.39	674	40.36	1238	38.45
Not currently	986	63.61	996	59.64	1982	61.55
number of children	number	%	number	%	number	%
There is no	53	3.419	1670	100	1723	53.51

1-2 children	475	30.65	0	0	475	14.75
3-4 children	419	27.03	0	0	419	13.01
5-6 children	289	18.65	0	0	289	8.975
More than 7	314	20.26	0	0	314	9.752

### SEARCH TOOLS

*The researcher used the following research tools*

Metadata form: It is the form that specifies a set of descriptive data on the sample, which is represented by (age, level of education, work, number of children, marital status), then measuring weight and height, for all the research data the weight was measured using a standardized medical scale. Height was measured using the listed height scale, then BMI was calculated using the formula (weight kg / height 2), and BMI classifications were extracted based on WHO standards (2000, Who) which are: thinness (less - 18.49), weight Normal (18.5 - 24.99), overweight (25.0 - 29.99), obesity (> 30.0) (kg / m2), then the subjects of the research sample responded to the Iznik list of personality, which was designed by Sybil & Hans, which generally measures two dimensions of personality: the dimension (extraversion - introversion) and after (Emotion - equilibrium), and it has two equivalent images, picture (1) and image (b), and each image has a number (57) statements so that the alternatives for response by the subjects are (yes, no), of which (24) is a phrase to measure the dimension of extraversion - introversion, where The high score on this dimension indicates the individual's tendency towards the dimension of extroversion, while the low score for the individual on this dimension indicates his tendency towards the dimension of introversion, and the list contains (24) another phrase to measure the dimension of emotion - equilibrium, where the high degree on it indicates the tendency towards the dimension of emotion While the low score on it indicates a tendency towards the dimension of equilibrium, so that the degree (12) was adopted as a degree to separate between high and low on the previous two dimensions, and the list included (9) items developed as a measure of lying, where the high score indicates the individual's desire to choose acceptable answers.

#### ***Research data collection:***

The collection of research data was started from the date (3/2020 - 11/2020), so that the researcher sought help from a group of female students by training them to collect research data in a scientific way, under the supervision of the main researcher.

#### ***Statistics used***

The researcher used the following statistical methods to answer the research questions:

1. Chi-square (x2), frequencies, and percentages.

2. Crosstabulation, which is based on finding the correlation between two non-quantitative variables, and it depends on finding the relationship using the Pearson Kai correlation coefficient 2.

**Presentation and Discussion of Results:**

In light of the first research question and its text: What is the prevalence of obesity, overweight, normal weight and underweight, and does it differ according to the marital status of a sample of Saudi women in light of the Corona pandemic? Body mass and according to the marital status of a sample of Saudi women.

**Table (2)** The significance of the differences in the prevalence rates of BMI classifications and according to the marital status of a sample of Saudi women.

BMI rankings	Married		Unmarried		Chi-Square test	All sample	
	N= 1550		N= 1670			N= 3220	
	number	%	number	%		number	%
Weight loss	231	14.90	246	14.73	NS= (0.890) 0.137	477	14.37
Normal weight	313	20.19	645	38.62	(0.00) * 11.43	958	28.86
Overweight	251	16.19	234	14.01	NS= (0.0838) 1.72	485	14.61
Obesity	755	48.71	545	32.63	(0.00) * 9.88	1300	39.16
Obesity and overweight	1006	64.90	779	46.65	(0.00) * 10.41	1785	53.77
Chi-Square test	(0.00) * 11.58		(0.00) * 16.9			(0.00) * 11.17	
<b>Statistical test used: Chi-Square test</b>							
<b><i>p-value ≤ 0.05 considered statistically significant (95% confidence interval).</i></b>							

\* = a function at (0.11) level, NS = no significant statistical differences\*

Table (2) shows that there are significant statistical differences in the prevalence rates of normal weight between married and unmarried women, where the prevalence rate was, respectively. (18.73%), (42.96%), and there was also a significant increase in the prevalence of obesity among married women, at a rate of (53.08%) compared to unmarried women by (32.50%), in addition to a significant increase in the prevalence of obesity. And overweight (combined) among married women compared to unmarried women, respectively (67.80%) and (45.88%), and these results indicate the existence of an impact and a relationship between marital status and the prevalence and rise in obesity and overweight in light of a pandemic, and this is consistent with some Studies that indicated a high rate of obesity and overweight among married women.<sup>[6, 41-45]</sup> The study (1992, Jeffrey et al.)<sup>[46]</sup> Showed that marital status is related to disease and death, as it was found that married individuals (especially males) are healthier and less likely to die than unmarried persons, and the relationship between marital status and obesity has also been shown to be more clear among

The prevalence of obesity and overweight among married Moroccan women compared to unmarried women has also reached a higher prevalence of obesity and overweight among women in American society, as the prevalence of overweight reached (39.7%), (22.4%), respectively. And the prevalence of obesity (37.3%), (3.4%), and the study (Al-Mossaquer and Al-Qashqari, 2005)<sup>[38]</sup>, which was conducted on a sample of Saudi women, showed an increase in the prevalence of obesity among married women, reaching a rate of (76.8%). Unmarried women (32.2%), and this can be explained by a group of factors that a woman can be exposed to after marriage, which is pregnancy and the accompanying increase in body fat percentage and the occurrence of many sagging in the abdomen and waist area and weakness in a group Back muscles and shoulder girdle also This increases the risk of a pregnant woman developing gestational diabetes.<sup>[31, 47-54]</sup>

This is in addition to the lack of health awareness towards appropriate exercise during pregnancy. In light of the second research question and its text: What is the prevailing personality type among a sample of Saudi women in light of the Corona pandemic and according to the social status? Table (3) indicates the significance of the differences in the proportions of personality type and according to the marital status of a sample of Jordanian women.

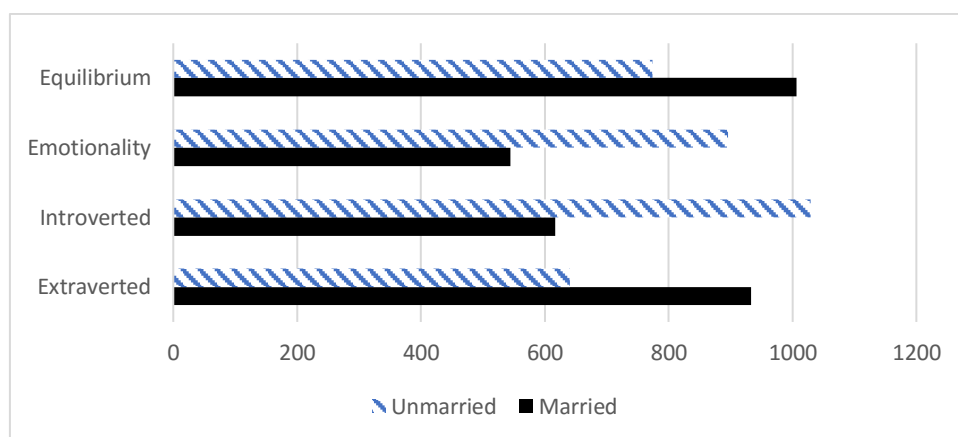
**Table (3)** The significance of the differences in the proportions of personality type in light of the Corona pandemic and according to the marital status of a sample of Saudi women.

Personality style	Married		Unmarried		Chi-Square test	All sample	
	N= 1550		N= 1670			N= 3220	
	number	%	number	%		number	%
Extraverted	933	60.19	641	38.38	(0.00) * 13.14	1574	47.41
Introverted	617	39.81	1029	61.62	(0.00) * 20.65	1646	49.58
Emotionality	544	35.10	896	53.65	(0.00) * 18.16	1440	43.37
Equilibrium	1006	64.90	774	46.35	(0.00) * 14.77	1780	53.61
<b>Statistical test used: Chi-Square test</b>							
<b><i>p-value ≤ 0.05 considered statistically significant (95% confidence interval).</i></b>							

\* = a function at (0.01) level\*

It appears that the equilibrium personality type was the highest among the four types, with proportion and magnitude. (61.8%), and in the second place came the introverted pattern with a percentage (50.1%), and the third place came the extroversion pattern (49.9%), and in the fourth place the personality type (38.2%), while figure (1) indicates the distribution of personality types according to social status.





**Figure (1)** personality style depending on the marital status.

Figure (1) shows an increase in the extroverted and balanced personality pattern of married women, with proportions respectively (62.4%) and (68.8%) compared to that of (39.4%) and (55.8%) among unmarried women, in addition to a decrease in the introverted and emotional personality pattern among married women, in proportions, respectively. (60.6%), (44.2%), and its increase among unmarried women by a percentage (60.6%), (44.2%), and all of these percentages are statistically significant at the level of (0.01) For the benefit of married women, and this result indicates that marriage may be a factor affecting the existence of the personality style of the women in question, and the existence of differences in personality style can be explained.

According to the marital status of the research sample (married and unmarried women), it was found that single females are more introverted, more emotional, and less extroverted and balanced compared to married women under the Corona pandemic, meaning that single women are more neurotic than married women as it is known that neurotic individuals have traits of anxiety and tension. Feelings of guilt, low self-esteem, mood swings and over-excitement, even for simple reasons, and since every woman loves to be beautiful and graceful, to get a chance to marry and to fulfill the most important emotions she has, which is the feeling of motherhood and to be a mother who raises and takes care of her children, and therefore married women were more flat And more balanced, unlike unmarried women, perhaps for these previous reasons, this is in addition to the possibility that the psychological pressure on single women and their fear that they will miss the train of marriage and reach the age of menopause, which makes them more neurotic and emotional as (Johnet al., 2010)<sup>[55]</sup> indicates that the factor of marriage Or obtaining a partner in life is considered one of the important factors in a woman's life, which may affect her personality style and may make her more or less an adaptation. Aware.

One of the psychological effects of not marrying a woman is her increasing feeling of frustration and deprivation, as one of the nature of a woman's instinct is to meet and people with a life partner, and the woman's failure to obtain this innate right will lead to her growing feelings of frustration, disappointment and

psychological loneliness, and unmarried women who missed Or it may miss the train of marriage, especially with aggression towards the opposite sex, where she feels in her heart the ball and hatred for the sex of men because they have turned away from her, and it may also be characterized by aggression, envy and jealousy towards the girls of her sex who are married, and this is why the single woman may look with envy, hatred and hatred expressed in the behavior of Nervous and aggressive towards its members, and the single woman can increase the manifestations of isolation and introversion, by pursuing her attention, and trying to compliment her by others by wishing her to marry her, which leads her to move away from confronting others and prefer social isolation, and it may be feelings of loneliness that can be Single women feel an impact on this, as Brookl et al., 2016 [36] indicates that the lack of marital engagement increases feelings of frustration, tension and anxiety in women and makes them more nervous and anxious. For poise.

In light of the question of the third research and its text: What is the nature of the relationship between personality type and BMI classifications of a sample of Saudi women and according to marital status?, Table (4) refers to the results of a cross-over analysis (Crosstabulation) to identify the nature of the relationship between personality type and classifications BMI for a sample of Jordanian women, according to marital status.

**Table (4)** the results of the cross-tabulation analysis to identify the nature of the relationship between personality type and BMI classifications.

Personality style	Married									
	Weight loss		Normal weight		Overweight		Obesity		Obesity and overweight	
	n	%	n	%	n	%	n	%	n	%
Extraverted	142	9.16	162	10.45	133	8.5	496	32.0	629	40.5
Chi-Square test	(0.00) * 53.16									
Introverted	89	5.74	151	9.74	118	7.6	259	16.7	377	24.3
Chi-Square test	(0.00) * 211.56									
Emotionality	45	2.90	113	7.29	131	8.4	255	16.4	386	24.9
Chi-Square test	(0.00) * 128.14									
Equilibrium	186	12.0	200	12.9	120	7.7	500	32.2	620	40.0
Chi-Square test	(0.00) * 38.47									
Personality style	Unmarried									
	Weight loss		Normal weight		Overweight		Obesity		Obesity and overweight	
	number	%	number	%	number	%	number	%	number	%
Extraverted	102	6.11	322	19.28	89	5.33	128	7.66	217	12.99
Chi-Square test	(0.00) * 66.54									
Introverted	144	8.62	323	19.34	145	8.68	417	24.97	562	33.65
Chi-Square test	(0.00) * 192.17									

Emotionality	112	6.71	307	18.38	112	6.71	365	21.86	477	28.56
Chi-Square test	(0.00) * 33.45									
Equilibrium	134	8.02	338	20.24	122	7.31	180	10.78	302	18.08
Chi-Square test	(0.00) * 19.16									
Chi-Square test Depending on marital status	(0.00) * 255.1		(0.00) * 316.54		(0.00) * 122.8		(0.00) * 137.89		(0.00) * 241.18	

\* = a function at (0.01) level\*

It is clear from Table (4) that there is a relationship between marital status and the subsequent presence and prevalence of body mass index ratios and personality type. We find that there is an increase in the prevalence of the Extraverted personality type among married women who suffer from obesity and the increase in weight by (40.5%), while the highest percentage for the Equilibrium personality type was among married women who suffer from obesity, at a rate of 40%, while the highest percentage for the Introverted personality type was among unmarried women who suffer from obesity and the increase in weight, at a rate of 33.65%. This is in addition to the increase in the proportion of Emotionality personality type for them, which makes them enjoy a normal weight by up to (28.56%).

This is in agreement with the results of some few studies that have investigated the relationship between personality type and body composition pattern, as (Myles et al. 2001)<sup>[56]</sup> found a direct relationship between the presence of obesity and overweight and between the increase in neuroticism indicators and the decreased indicators of extroversion in females, as Studies show.<sup>[17, 22, 57]</sup>

Obesity has a fundamental role in psychopathology, and it has a relationship with personality type. It is also consistent with a study (Carpenter et al., 2000)<sup>[43]</sup> in which it was found that obesity and normal weight in females are two factors affecting the extent to which a certain personality pattern exists for them, especially the height of neuroticism in non-Married women who suffer from obesity and overweight.

Consequently, the factor of non-marriage, suffering from obesity and being overweight may be important factors in increasing introversion and irritability and decreasing indicators of equilibrium and extroversion, especially among unmarried females.

Therefore, and in light of the results of the research, the researcher was able to reach the following conclusions:

1. Marriage is one of the factors contributing to the increase in the prevalence of obesity and overweight among Saudi women

2. The Corona pandemic and the spread of the virus have led to weight gain for women as a result of sitting for long periods at home, lack of movement and not practicing sports activities, even simple ones.
3. That there is a close relationship between marital status and personality style, as the marital status of women is one of the factors that may affect their personality style.
4. The prevalence of the introverted personality type decreases among married women who are obese or overweight, while they have a higher incidence of the equilibrium personality pattern, while the relationship was on the contrary to that among unmarried women and those with obesity or overweight, as they had a higher incidence of a pattern. The introverted personality and the low incidence of the equilibrium personality type.

### RECOMMENDATIONS

In light of the results he had reached, it was possible to recommend the necessity of creating sports programs for practicing sports and physical activity for women in general, especially those unmarried women, because obesity and excess weight have very negative effects on their personality and mental health in light of the conditions the world is going through as a result of the spread of the Corona virus. Novelty.

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