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Abstract :

Background:

Body shape is an important thing, especially in some cultures for some societies such as Sudan, weight gain is sometimes linked to cultural heritage in some African countries, as in Sudan, for example, in Sudan, if a girl is skinny and she is about to get married we find that the mother She is very interested in gaining weight to become more beautiful as she thinks. But although these traditions have changed among some, there are many women who are interested in gaining weight {1} and this has led to some unreliable recipes for weight gain. Most of the participants (57.7%) were between the ages of 29-38 which is considered young age and 65.4% of them had either secondary or primary education, 53.8% of the participants were married who used prescriptions to gain weight. , There are a number of sources from which prescription information is taken for weight gain drugs, and most of them are non-pharmaceutical, such as shops (42.3%), and they are unreliable sources from which these drugs can be taken .

Objectives: The aim of this study was to assess the extent of Sudanese women's knowledge about the use of off label drugs, which those used in weight gain .

specific objectives was to know the types of medicine used and how they affect the body and how to get these drugs and make some advices .

method used : The descriptive cross-sectional analytical study was conducted among 1100 women(, from November 2021 to March 2022) but the analysis targeted only 260 who were using medicine to gain weight or had used them before. The questionnaire included the demographic information of the participants, such as age, education level, and place of residence. It also contained their information about the types of medicine used, how to purchase them and their effects ., then the data was analyzed using the SPSS program and placed in the tables.

Sampling: The questionnaire targeted all adults women present in some of the wedding houses in Omdurman, Khartoum State, and those who did not agree to filling out the questionnaire were excluded.

.Problem Statement: There are very few studies published on this subject, and because there is a problem in the illegal use of these medicine and their spread, the attempt in this study is to shed light so that officials are alerted., it was necessary to highlight it in order to alert the officials to this problem.

Hypotheses: Based on my observation of the rapid increase in weight for some young women and girls, and as I hear a lot about the complications of drugs used to gain weight, I expected that many women do not know much about these drugs and just want to reach their goal, which is weight gain.

Setting: Omdurman is the second largest city in Sudan and constitutes the large part of the state of Khartoum, the capital of the country. It is located along the west bank of the Nile and the White Nile opposite the city of Khartoum and the city of Khartoum Bahri, with a population of about 1 million people (July 2001 AD). It has an area of about 4,948 square kilometers. {2 }

Participants: The number of women who agreed to participate in the questionnaire was 1100, and

the number of those who were currently using medicine or had previously used was 260, and they are the ones included in the analysis in this study.

Introduction - Obesity, by definition, results from ingesting calories in excess of ongoing requirements. Although environmental and lifestyle factors contribute to obesity pathogenesis. {3}. There is a difference in the perception of weight gain beautiful body image in different cultures and population ethnic groups throughout the world. For example- obesity and overweight which are health risks, are considered in some cultures as signs of wealth or prestige (Tai Soon 2013). Contrary to the case in modern western societies, as it is for some African women who prefer to gain weight. {4}. There is a widespread use of various medical drugs by women and adolescent girls to gain weight, which is believed to increase their beauty and make them attractive, as they consider it a thing of fashion. Which is bought from pharmacies, but mainly from the market and other illegal methods {5}

Body image :Body image can be described as a combination of a person's perceptions, feelings and thoughts about his/her body and their general physical appearance. Body image is closely related to a person's perceptions, feelings, and thoughts about their body, and is usually conceived as including estimating body size, assessing body attractiveness, and emotions related to body shape and size{6&7}. Body image factors may affect a lot in a individual's behavior, for example, people who are overweight tend to do some things, such as sports and some other food behaviors, as sometimes we find some tend to restrain eating, while the other is the opposite, as we find some tend to use some things that lead to an increase in muscle{8}. weight gain drugs in Sudan has become more and more popular lately among adolescents and adult women. The main claim for the practice is for male attraction and to look sexy. Achieving weight gain by some is through the intake of pharmaceutical drugs which are purchased from pharmacies, but mainly from the black market sold by ambiguous traders.{9}

the Impact of body weight in appearance: There is a growing literature on the effects of body size and weight on body image , some studies indicate that there is some evidence that women and girls Objectively heavier people tend to be less satisfied With their bodies, {10}. On the number that some studies have found that weight gain It is a stigma in Western cultures, which may It leads to low mood, self-esteem and body Dissatisfaction with people who consider themselves to be overweight But according to those studies and some observation, there are a number of women who tend to gain weight, as it is in Sudan and some other African countries such as Mauritania{11} In some Arabic cultures, thinness is regarded as socially undesirable and bigger body sizes are symbolic of fertility and Women's womanhood . There are also some studies that confirm the influence of culture in a woman's view of her body. Past research has shown that culture plays a significant role in forming appearance ideals and that these vary for women of different cultures{12&13} As such, body image and body size perceptions are closely linked {14} Culture affects body image and body size perceptions from an early age {15}and different ideals for body shape and weight are seen in different cultures . In many African and Arabic countries, overweight has been associated with richness, health, strength, and fertility.{16&17}.

Fake recipes and their health effects: Counterfeit medicines have now become a widespread threat to people's health, (18)

According to the World Health Organization (WHO) Counterfeit medicine is “a medicine that is deliberately It is named fraudulently related to the source This can apply to both branded and generic products and Fake products may include products with the correct ingredients Or with the wrong ingredients, without active ingredients, with Insufficient active ingredients or with counterfeit packaging(19) . WHO reported that about 10% of the global drug market is counterfeit. This is estimated up to 25-50% in developing countries , (20). There are many problems as a result of the use of fraudulent or unidentified drugs, such as the use of fraudulent weight gain drugs To build muscle and achieve the desired bodyWhere . Wide ranges of active pharmaceutical ingredients are used In herbal supplements for weight gain. Steroids Glucocorticoids and cyproheptadine are used as modulators in herbs

Drugs , (21) .

Chart 1 : Some generic names of medicines and the names that are traded for marketing and explain their meanings (21)		
General name	Black market name	Arabic meaning
Folic Acid	Folic Acid	Quique result
Indomethacin	ALtageel Warra	weight gain in the buttocks.
Cyproheptadine	Alsafga	leaf
Dexamethasone	Alhawra be Alnus	street in one of the residential areas in Omdurman city, Sudan

previous studies : although , the lack of research's on this particular topic, but there are some publications on this topic, such as an article done by Yousra in the Middle East magazine, It was conducted through interviews with a number of women of different ages to know their opinions about the drugs used for weight gain, the result was that , most of them tended to gain weight, believing that the other sex wanted to do so. Yusra saw that there is some little difference in opinions, as some women “believe that a woman’s weight and size enhances her position among people and gives her a strong personality. This is what prompts her to change the shape of her body and increase its weight in order to increase her self-confidence, They also reported that they take most of that drugs illegally. The same article conducted an interview with a pharmacist, Dr. Yasser Merghani, who is head of the Consumer Protection Association, said, "These drugs are unregistered drugs and are sold in random boutiques." Meirghani continued, "The widespread ignorance that promotes women who want to gain weight, about the effectiveness of these drugs in fattening some parts of the body and not others, and this is not true," denouncing the "inaction of the health authorities in preventing their circulation and protecting consumers from its dangers," blaming the National Council of Pharmacy, Medicines and poisons are fully responsible{22&23& 24 } There are some studies that are similar to this study, which was conducted among university students to find out the types of drugs (legal and illegal weight gain drugs by Sudanese university girl students.) , and the reasons for their use. The result was that there are many drugs of unknown source that are used, especially those used to gain weight. (25) .

Results

About 260 out of 1110 of the women who were surveyed were using or had ever used weight-gaining drugs, and their answers were analyzed as follows

Table {1} Demographic results

Characteristic {N=260}	variables	Frequenc y	Percent age %	Valid Perce nt	Cumula tive Percent
Participants who used weight gain drugs	used	260	23.6	23.6	23.6
	Not used	840	76.3	76.3	100.0
Total		1100	100.0	100.0	
Participant's age group	18-28 years	75	28.8	28.8	28.8
	29-38 years	150	57.7	57.7	76.5
	39-48	30	11.5	11.5	98
	> 48	5	1.9	1.9	100.0
	Total	260	100.0	100.0	
Education level of Participant's	university	80	30.8	30.8	30.8
	secondary	110	42.3	42.3	73.1
	primary	60	23.1	23.1	96.2
	illiterate	10	3.8	3.8	100.0
	Total	260	100.0	100.0	
Marital status	Marriage	140	53.8	53.8	53.8
	Not marriage	80	30.8	30.8	84.6
	Diverse	30	11.5	11.5	96.1
	Widower	10	3.8	3.8	100.0
	Total	260	100.0	100.0	
participants occupations	Yes	110	42.3	42.3	42.3
	no	150	57.7	57.7	100.0
Total		260	100.0	100.0	
place of living	Village	120	46.2	46.2	46.2
	City	140	53.8	53.8	100.0
	Total	260	100.0	100.0	

the above table (1) : shows that most of the participants (57.7%) aged between 29 to 38 years, followed by ages between 18 to 28, (28.8%) , 39 to 48 (11.5%,) while the least (1.9%) are more than 48 years old . Also the table revealed that most of participants have secondary education level (42.3%) followed by university education (30.8%) and only (3.8%) were illiterate . As it is in the table above most of participants (53.8%) were marriage women followed by not marriage which were (30.8%) and divorce women were (11.55), widower were (3.8 %). also shows that 42.3% of the participants work, while the majority of them (57.7 %) do not work , most of them from city (53.8) , The rest are from the villages (46.2 %) .

table{ 2} Information sources and purchase of weight gain drugs

Information	variables	Frequency	Percentage	Valid	Cumulative
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sources and purchase of weight gain drugs N.260			%	Percent	Percent
the source of weight gain recipes?					
Sources	Doctor	03	1.53	1.5	1.5
	Pharmacist	03	1.53	1.5	3.0
	Dietitian	4	1.5	1.5	4.5
	From places of sale or boutiques,	110	42.3	42.3	46.4
	from the Internet	70	26.9	26.9	73.3
	from relatives	60	23.0	23.0	96.3
	Others	10	3.8	3.8	100.0
	total	260	100.0	100.0	
Sources of weight gain drugs					
Sources	Pharmacy	08	3.1	3.1	3.1
	Market/ Boutiques	162	62.3	62.3	65.4
	from some of the ladies	60	23.1	23.1	88.5
	Others	30	11.5	11.5	100.0
	total	260	100.0	100.0	
types of used weight gain drugs					
Forms of drugs	Recipes from natural foods	10	3.8	3.8	3.8
	Tablets	150	57.7	57.7	61.5
	Syrup	60	23.0	23.0	84.5
	Creamy	40	15.4	15.4	100.0
	Total	260	100.0	100.0	
the name of the product that was used					
Names	be the star	65	25.0	25.0	25.0
	Fruits	15	5.8	5.8	30.0
	Watching Tomorrow	60	23.1	23.1	53.1
	Yeast	15	5.8	5.8	58.9
	Altageel wara	10	3.8	3.8	63.7
	Why are you upset	35	13.5	13.5	77.2
	Continuous charging	60	23.1	23.1	100.0
	Total	260	100.0	100.0	
the medical name of the product?					
Participants' answers					
	yes	20	7.7	7.7	7.7

	no	240	92.3	92.3	100.0
	Total	260	100.0	100.0	

the above table(2): shows the most sources of taking prescriptions information for weight gain were from boutiques (42.3%) followed by the Internet (26.9%), relatives (23.0%) and other sources (3.8%), followed by pharmacies (1.5 %), doctors (1.5 %) and Dietitian was only (1.5%). All so the above table (2) explain that the Sources to buy weight gain recipes Which was that most of these places are markets and boutiques (62.3%) , followed by some of the ladies (23.1%) and other places were (11.5%) and only (3.1%) buy it from pharmacies. all so the highest type used of drugs was tablets (57.7%), followed by syrup (23%), then cream types, and only (3.8%) from natural ingredients . As for the names of these recipes used, the participants said that (25%) of these recipes are called being the star, followed by you see tomorrow (23.1%) , (23.1%) Continuous charging , and then why are you upset (13.5%), fruits (5.8%) and yeast also (5.8 %), then the altageel wara (3.8%) , Most of them, (92.3%,) do not know the original medical name of the products used

Table {3} Period and variables					
periods of use N.260	variables	Frequency	Percentage %	Valid Percent	Cumulative Percent
How long usually use the recipe					
Duration	<2 weeks	30	11.5	11.5	11.5
	2-3 weeks	50	19.23	19.2	30.7
	One month	150	57.69	57.7	88.4
	> month	30	11.5	11.5	100.0
	Total	260	100.0	100.0	
The beginning period of weight gain appearance					
Appearance time	< week	50	19.23	19.2	19.2
	After 2 Weeks	110	42.30	42.3	61.5
	< month	100	38.46	38.46	100.0
	Total	260	100.0	100.0	

The above table(3) : shows the duration of use and the time when the result of using weight-gaining recipes appeared. Most of the participants reported that they use them for about a > month, (57.7%) , followed by (19. 2%) said they used them form2 to 3 weeks, while (11.5%) reported that they used them for < weeks, and (11.5%) reported that they used them for more than month . As for the result of the time when weight gain appeared, most of the participants, (42.3%) , reported that it appeared after the first two weeks, followed by (38.5%) who reported that it appeared after the first two weeks, while (19.2%) reported that the increase in weight appeared after the one month.

Table {4} side effects of weight gain drugs					
Side effects N.260	variables	Frequency	Percentage %	Valid Percent	Cumulative Percent
information about the side effects of weight gain drugs					
Response	Yes	170	65.4	65.4	65.4
	No	90	34.6	34.6	100.0
	total	260	100.0	100.0	
Have you seen anyone who has been harmed by these drugs?					
Response	Yes	90	34.6	34.6	34.6
	No	170	65.4	65.4	100.0
	Total	260	100.0	100.0	
Have you noticed any side effects while using the weight gain recipe?					
Response	yes	210	80.8	80.8	80.8
	no	50	19.2	19.2	100.0
	Total	260	100.0	100.0	
If yes what are these side effects					
side effects	Acne	40	15.4	15.4	15.4
	Some rashes on the skin	30	11.5	11.5	26.9
	Severe weight gain	70	26.9	26.9	53.8
	Menstrual disorder	20	7.7	7.7	61.5
	mood change	20	7.7	7.7	69.2
	Fatigue	30	11.5	11.5	80.7
	No	50	19.2	19.2	100.0
	Total	260	100.0	100.0	
What is the most overweight body site					
Site	the parties	15	5.8	5.8	5.8
	Abdomen	70	26.9	26.9	32.7
	Face	75	28.8	28.8	61.5
	Hips	70	26.9	26.9	88.4
	Buttocks	30	11.5	11.5	100.0
	Total	260	100.0	100.0	

icipants' answers about the side effects information of using weight gain prescriptions, which was that (65.4%) of them had some information that they can cause complications and (34.6%) of them said that they did not know about those complications , (34.6%) of them said that they knew about

The above table(4): shows the part

some of those who had complications, while most of them (64.4%) said we did not know who had any of those complications, also (80.8%) of them answered they feeling complication during weight drug using , while (19.2%) said no , (26.9%) of the participants reported that they feel severe weight gain during the period of using weight gain prescriptions, followed by Acne (15.4%) and (11.5%) some skin rashes and (11.5%) fatigue and irregular menstruation (7.7%) as well as mood changes (7.7%) . Also (28.8%) were reported that the face is the most visible areas in the result of weight gain drugs , followed by (26.9%) for each of the waists and abdomen, and buttocks (15.5%) , while only (5.8%) reported that the increase occurred to them more in the parties

Table {5} Reasons for wanting to gain weight					
Participants knowledge N.260	variables	Frequency	Percentage %	Valid Percent	Cumulative Percent
Reasons for wanting to gain weight					
Reasons	encouragement from friends	20	7.7	7.7	7.7
	to beautify the appearance	91	35.0	35.0	42.7
	extreme thinness	19	7.3	7.3	50.0
	The desire of men	50	19.2	19.2	69.2
	To feel confident	80	30.8	30.8	100.0
	Total	260	100.0	100.0	
Do you think these recipes are legal to use?					
Respondents	Yes	110	42.3	42.3	42.3
	no	80	30.8	30.8	73.1
	Don't knew	70	26.9	26.9	100.0
	Total	100.0	100.0	100.0	
Do you think you got enough advice on how to use weight gain drug?					
Respondents	yes	70	26.9	26.9	26.9
	no	130	50.0	50.0	76.9
	Don't knew	60	23.1	23.1	100.0
	Total	260	100.0	100.0	
Why did you resort to these recipes as an alternative to pharmacies?					
Respondents	The high prices of pharmacies	120	46.2	46.2	46.2
	easy to obtain	70	26.9	26.9	73.1
	fast results	60	23.0	23.0	96.1
	there are no reasons	10	3.8	3.8	100.0
	Total	260	100.0	100.0	
Are you satisfied with your weight now?					
Satisfied	yes	130	50.0	50.0	50.0

	no	60	23.0	23.0	73.0
	Not as I want	70	26.9	26.9	100.0
	Total	260	100.0	100.0	
Do you recommend others to use weight gain drugs ?					
Respondents	yes	80	30.8	30.8	30.8
	No	60	23.0	23.0	53.8
	If there is a need for that	120	46.1	46.1	100.0
	total	260	100.0	100.0	

The above table(5): shows the reasons for the participants' taking prescriptions to gain weight, which was that most of them (35%) took it to feel beauty, (30.8) reported is it to sense of self-confidence, and (19.2%) said it was fulfilled by the desire of men , (7.3%) reported that it is for extreme thinness and (7.7%) said that the reason for their use of recipes was due to encouragement from friends to do so. with regard to the lack of legal use of these recipes, most participants (42.3%) believe that the use is illegal, and (30.8%) said that the use is legal, while (26.9) answered that They don't know how legal it is . most of the participants (46.2%) of the participants preferred to choose other sources as an alternative to pharmacies because of the high prices of pharmaceutical prescriptions, and (26.9%) said that the reason was the ease of obtaining them, while(23%) said that their choice was to speed up the results of weight gain, and (3,8%) said they had no reasons. 50% of the participants said they were satisfied with the result of using weight-gaining drugs, followed by those who said that they are not what they want (26.9%) while 23% said they are not satisfied with that. Also (30.8%) reported that they do not recommend others to use these recipes and(23%) of those who said that it can be recommended to others to use, while most of them said that it can be used in case of need

Discussion : About 260 out of 1110 of the women who were surveyed were using or had ever used weight-gaining drugs, and their answers were analyzed as follows . Most of the participants (57.7%) were aged between 29 to 38 years Which is considered youthful age And (65.4%)of them were either secondary or primary education , most of them (53.8%) are married who are one of the groups that tend to gain weight , there are a number of sources from which prescription information taken for weight gain drugs, most of which are non-pharmacy, such as boutiques (42.3%), which are unreliable sources from which these drugs can be taken, which matches the results of another study conducted among Sudanese Female university students (25)Accordingly, purchases are made from illegal places where most of the participants take these recipes from shops (62.3%), some women street vendors and other illegal places that may be due to weak legal penalties . .According to the responses of the women participating in this study, the medicines were classified into groups, some of which are taken in the form of tablets, which is the most used (57.7%) and others in the form of cream, and other group in liquid form, and a group that is taken in ingredients from natural foods, by only (3.8%), which is probably because the results are slow , and according to the participants they reported that these groups of drugs have other names according to its results type common among them, and they are often called by traders in these recipes, which were not her original names. (57.7%) of them had used these products for a month but most of them (42.3%,) reported that the result appeared after the first two weeks, Also,

34.6% of the participants were unaware of the complications of these products, and (64.4%) reported that they had heard of this, but they did not know who had these complications and also reported that there were some side effects that occurred to them after use, which is a significant increase in weight (26.9%) and some other unwanted effects. And (28.8 %) of them reported that The parts of the body that show the increase fastest is the face, followed by the abdomen and hips. Which calls for health and media education to avoid this. There are several reasons for the participants to use these products and most of them reported that the reason for using is to feel that they are beautiful and attractive to others like the opposite sex like men which may related to the social traditions as in the study of Benckiser who reported that many dark-skinned women, such as African women, are more satisfied with higher weights compared to white women and believe that they are more beautiful and attractive to men influenced by their societal cultures (26). Also, (42.3%) of the participants believe that the method of obtaining these drugs is legal and that they did not receive adequate advice for use, (50%) , which shows the extent of the danger in use. They also(26.9%)reported that they buy outside pharmacies or legal methods, because the product is easy to take , cheap prices (46.2%) , quick results . While (50%) reported that they were satisfied with the results of the use, some of them reported that they were not satisfied, and others reported that they were not the desired results. Also, (46.1%) reported that they do not advise others to use off label drugs unless there is a need for it.

Conclusion : According to the analysis of the results of this study i conclude that there is a lack of application of the law in punishing all those who work in the illegal sale of drugs. As many of those who use these drugs are aware that some complications may occur, but there is an insistence on their use, perhaps due to the lack of awareness of the extent of the seriousness of this .

Ethical Consideration: As is followed in any research, after obtaining permission from the official from the target group, the choice is for those who want to participate in the follow-up of the questionnaire and to exclude all those who do not wish to do so.

Consent:The questionnaire was filled out by obtaining permission and presenting the questions first to the adult women who were in gathering places for occasions and explanation of the questionnaire and its benefits and then it was filled out by those who agreed to that.

Recommendations :

- Enact laws to prevent illegal drug trade
- Educate everyone about the importance of the correct use of medicines
- The interest of the Ministry of Health in these drugs and how to smuggle them into Sudan
- Clarify the interactions of these drugs inside the body and how to gain weight so quickly
- Clarify the seriousness of obesity and the diseases that result from it
- Attempt to introduce awareness of the importance of a healthy ideal weight
- The different Sudanese media should pay attention to the dangers of women taking different types of weight gain drugs

References

- 1- Jackson, L. & Mckill, O. 1996. Body type preferences and body characteristic associated with attractive and unattractive bodies by African American and Anglo American. *Sex Roles*. Vol. 35, nos. 5/6.
- 2- <https://ar.wikipedia.org>
- 3- Tai Soon, Y. Directional internalization of sociocultural values related to the appearance of body image and self- esteem. *Journal of the Korean Society of Clothing and Textiles*. 2013. Vol. 37, no. 3, pp. 260-269.
- 4- Sims, E. A. et al. Endocrine and metabolic effects of experimental obesity in man. *Recent Prog. Horm. Res.* 29, 457–496 (1973)
- 5- Benkesser, R.; Biritwum, R. and Hill, A. Prevalence of overweight and obesity and perception of healthy and desirable body size in urban, Ghanaian women. *Ghana Medical Journal*. 2012. Vol. 46, no. 2, pp. 66–75.
- 6- Yousif, K.; Ahmed, A.; Elmustafa, M.; Ahmed, E . The use of bleaching creams among Central Sudan students. *Pharmacology and Pharmacy*. 2014 Vol. 5, no. 5, pp. 532-539.
- 7- Groetz, L. M., Levine, M. P., & Murnen, S. K. The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders*, (2002). 31, 1–16.—
- 8- Grogan S. Body image and health contemporary perspectives. *J Health Psychol*. 2006;11:523–30.
- 9- Cooley, E., & Toray, T. Body image and personality predictors of eating disorder symptoms during the college years. *International Journal of Eating Disorders*, (2001). 30, 28–36.----
- 10- Abdel Magied, Ahmed et al. Body image and the use of legal and illegal weight gain drugs by Sudanese university girl students, *Ahfad Journal* vol. 36, no. 2, December 2019, pp. 35-42
- 11- Schwartz, M. B., & Brownell, K. D. Obesity and body image. *Body Image: An International Journal of Research*, (2004). 1(1), 43–56.
- 12- Grogan, S., & Wainwright, N. Growing up in the culture of slenderness: Girls' experiences of body dissatisfaction. *Women's Studies International Forum*, (1996). 19, 665–673.
- 13- Wildes, J.E., Emery, R.E., & Simons, A.D. The roles of ethnicity and culture in the development of eating disturbance and body dissatisfaction: A meta-analytic review. *Clinical Psychology Review*, (2001). 21 (4), 521-551.
- 14- Cheney, A.M. (2010). "Most Girls Want to be Skinny": Body (Dis)Satisfaction Among Ethnically Diverse Women. *Qualitative Health Research*, published online 9 December 2010, doi: 10.1177/1049732310392592.

- 15- Riley NM, Bild ED, Cooper L, Schreiner P, Smith DE, Sorlie P, Thompson KJ. Relation of self-image to body size and weight loss attempts in black women. *Am J Epidemiol.* 1998;148:1062–8.
- 16- Musaiger AO. Overweight and obesity in eastern Mediterranean region: prevalence and possible causes. *J Obes.* 2011;2011(407237):17. <https://doi.org/10.1155/2011/407237>
- 17- Renzaho AM. Fat, rich and beautiful: changing socio-cultural paradigms associated with obesity risk, nutritional status and World Health Organization, Fact Sheet no. 275, Substandard and
- 18- Höllein L, Kaale E, Mwalwisi YH, Schulze MH, Holzgrabe U (2016)
- 19- World Health Organization, Fact Sheet no. 275, Substandard and Counterfeit Medicines
- 20- World Health Organization, Fact Sheet no. 275, Substandard and Counterfeit Medicines.
- 21- World Anti-Doping Agency (WADA) (2014) The 2014 prohibited list international standard.
- 22- Musaiger AO, Shahbeek NE, Al-Mannai M. The role of social factors and weight status in ideal body-shape preferences as perceived by Arab women. *J Biosoc Sci.* 2004;36:699–707.
- 23- -[https://www.skynewsarabia.com › varieties › 1383999-1...](https://www.skynewsarabia.com/varieties/1383999-1...)
- 24- -[https://sudaneseonline.com › board › msg](https://sudaneseonline.com/board/msg) ›. Arab Magazine
- 25- Abdel Magied, Ahmed et al. Body image and the use of legal and illegal weight gain drugs by Sudanese university girl students, *Ahfad Journal* vol. 36, no. 2, December 2019, pp. 35-42
- 26- Benkesser, R.; Biritwum, R. and Hill, A. 2012. Prevalence of overweight and obesity and perception of healthy and desirable body size in urban, Ghanaian women. *Ghana Medical Journal.* Vol. 46, no. 2, pp. 66–75.