

# Epidemiological and Socio-demographic Characters of Glucocorticoids Misuse among Premenopausal Women in Thi-Qar, Southern Iraq

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**Abstract**— Glucocorticoids (GCs) are widely accessible over-the-counter (OTC), liberally recommended by locals medical practitioner, and frequently misused by women for the purpose of treatment of skin conditions, joint pains, febrile illnesses and asthma. Unfortunately, ladies misuse a lot of over-the-counter GCs and glucocorticoids containing cosmetic creams, both imported and locally blended in order to deposit fat as a connection between beauty and propensity. The objectives of the study were to evaluate the epidemiological and socio-demographic characteristics of GCs misuse among reproductive women in the South of Iraq.

**Methods:** a cross-sectional study was conducted on 251 reproductive-aged women who were misusing GCs for any cause and attending Thi-Qar Specialized Diabetes, Endocrine and Metabolism Center (TDEMC) in Nasiriya City. They were evaluated for demographic characteristics, medical and social histories, and then examined carefully for any signs of GCs misuse.

**Results:** The mean ages of women were  $33.21 \pm 8.6$  years, BMI  $30.68 \pm 7.3$  Kg/m<sup>2</sup>, and 208 (82.9%) women were either overweight or obese. More than half (51.3%) of the women were misusing two or more forms of GCs and one quarter (26.7%) of them were misusing tablets. The types of GCs misused were presented as 77.7% dexamethasone, 19.5% prednisolone, 22.3% hydrocortisone, 21.1% betamethasone, 17.5% local GCs types, and 13.5% Inhaler GCs types. The major source of GCs misuse was pharmacy 201 (80.1%) and 18 (7.2%) from street vendors. Approximately, all women had many features of GCs-induced adverse effects and there were many misconceptions about their safety like 41.8% thought that using GCs was safe, and 45.8% did not really feel guilty about using those medications. About 90 of them (35.9%) were still misusing drugs during the time of meeting, 53 (21.1%) reported that physicians recommended them at the first time for using glucocorticoids and the majority 198 (78.9%) were misusing GCs by themselves, friends, or first-degree family to become beautiful or marry.

**Conclusions:** The relatively high rate of misuse of these drugs can be attributed to the lack of awareness of their chronic adverse effects, their widespread availability at pharmacies, plus their dramatic and quick response. Therefore, educational programs have to be implemented to

inform the public about the adverse effects of GCs and the problems of misuse of drugs.

**Keywords**— glucocorticoid (GCs), misuse, women, Iraq

## I. INTRODUCTION

Glucocorticoids (GCs) are a type of steroid hormones produced by the adrenal cortex and the hypothalamic–pituitary–adrenal axis controls their secretion (Bereshchenko et al., 2018). GCs, including normal GCs (corticosterone in mice; cortisol in humans) and synthetic GCs based on the structure of hydrocortisone (such as prednisolone or dexamethasone) (Buttgereit et al., 2005).

Systemic GCs such as prednisone, prednisolone, dexamethasone, and methylprednisolone are effective anti-inflammatory and immunosuppressive drugs. They are commonly used in clinical practice to treat systemic autoimmune illnesses, as well as a variety of other diseases like asthma, skin problems, allergic reactions, and other systemic disorders (Canalis et al., 2007). This is owing in part to their faster onset of action and lower cost than other disease-modifying anti-rheumatic medications (DMARDs) and immunomodulatory medicines (Laugesen et al., 2017).

GCs mainly prednisolone and dexamethasone are widely accessible over-the-counter (OTC), liberally recommended by locals' medical practitioner, and frequently misused by women for the purpose of treatment of different symptoms including skin conditions, joint pains, febrile illnesses and asthma. As a result, a large number of people become steroid-dependent (Armstrong et al., 2012).

The Iraqi healthcare system has numerous problems, which were likely exacerbated by the United Nations (UN) economic sanctions imposed on Iraq at the 1990 period (Alwan, 2008). The use of nonprescription medications and self-medication such as GCs are widespread because medications in Iraq are not categorized as either over-the-

counter or prescription-only, the general population has access to a greater range of medications than would otherwise be the case (Yousef et al., 2008).

As a result, self-medication is a prevalent practice in Iraq, and drugs can be purchased in pharmacies or from street vendors since the mid-1980s when the country was in the first Gulf War, and after the economic sanctions were imposed in 1991. (Abbas Ali Mansour et al., 2010).

Unfortunately, women in our nation misuse a lot of over-the-counter GCs and glucocorticoids containing cosmetic creams, both imported and locally blended in order to deposit fat (Zenoble & Kempainen, 1987). Being fat is culturally acceptable in many developing countries, this is because it is connected with beauty, prosperity, health, and status, whereas being thin is seen as a sign of bad health or poverty (Treloar et al., 1999).

Because of the magic effects of GCs, they were widely used without a prescription, which led to adverse effects that can also be severe even at low doses (Alvarez-Hernández et al., 2008). Therefore, when treatment exceeds three weeks, GCs should be gradually discontinued (Nowak & Papierska, 2014). The dangers of too many GCs are myriad and have been widely documented for decades (Gaffo et al., 2006). They, like any other potent medication, have serious adverse effects, and these side effects are costly (Pisu et al., 2005).

The damage caused by the GCs can affect the patient's life even years after GCs discontinuation. Interestingly, the risk of an incident occurrence can continue for some complications after previous GCs use. Prior GCs therapy has been linked to the increased risk of hypertension, hyperglycemia (Vegiopoulos & Herzig, 2007), adrenal insufficiency (Arlt & Allolio, 2003), decreased wound healing, osteoporosis, osteonecrosis, cardiovascular disease, infections, and cancer (Seguro et al., 2013). Any disturbance in the body's structure or metabolism that causes a sustained alteration in a person's regular way of life is referred to as a chronic "non-communicable" disease (Maatook & Mahmoud, 2019). They have similar risk factors, like a poor diet, inactivity, alcohol abuse, and smoking. The prevalence of these risk conditions increases the likelihood that chronic diseases may develop (Rahmah et al., 2022). The objectives of the present study were to evaluate the epidemiological, and socio-demographic characteristics of GCs misuse among reproductive women in the South of Iraq.

## II. METHODOLOGY

### A. Methodology

A cross-sectional observational descriptive study was conducted on 251 reproductive-aged women who were misusing GCs for any cause and attending Thi-Qar Specialized Diabetes, Endocrine and Metabolism Center (TDEMC), Nasiriya City, Thi-Qar, Southern of Iraq from October 2021 till July 2022. Prior to data collection, formal ethical approval was obtained from the Ethical Committee of Thi-Qar Health Directorate by the approval number (64/2021 at 24<sup>th</sup>- October 2021) to conduct the study. Informed written consent was assigned from each participant during recruitment to fulfill the international research ethical criteria. Each patient was directly

interviewed for a full medical history including a well-designed questionnaire was assessed in detail then a careful examination was done.

Sample size was calculated according to the equation  $\{N = P(1-P) Z^2 / d^2\}$  N = the minimum required size of the sample, p = proportion of (GCs misuse) in the population which was (26-130 per 1000) according to two evidences (Abbas Ali Mansour et al., 2010) (Dehghan et al., 2020), z = confidence level that will be used (z = 1.96 for 95), d = is the desired margin of error (=0.05). The minimum sample size required to conduct this study was (N = 45-174 cases), but the real number of cases in this study was (250) for more satisfaction.

All participants were including any premenopausal women who have currently or previously misused GCs by the spontaneous use of non-prescription glucocorticoids or the illegal purchasing of prescription glucocorticoids by someone for whom they were not prescribed, or repeated use of prescribed glucocorticoids on their own without consulting a specialist, or where peoples used glucocorticoids at a way that was not allowed (e.g. for cosmetic, gaining weight, pain relief, etc.). The following participants had been excluded from the study if they were not misused GCs, or used GCs for therapeutic purposes and under the supervision of a specialist doctor, postmenopausal women, or women before menstruation, and or refused to interview the questionnaire.

Each patient was interviewed separately to maintain confidentiality and they were evaluated for demographic characteristics including age, occupation, residency, marital status, parity, and history of current pregnancy. Medical and social histories were taken carefully such as smoking (smokes at least one cigarette a day), alcohol consumption (drinking any form of alcohol regularly or accidentally), history of hypertension (diagnosed by a physician report or on antihypertensive agents), diabetes mellitus (DM) (diagnosed by a physician report or known on treatment), Asthma, history of cardiovascular diseases or stroke, rheumatoid arthritis, inflammatory bowel disease, any confirmed autoimmune disease like idiopathic thrombocytopenic purpura, multiple sclerosis, systemic lupus erythematosus, etc. Social class for each participant was assessed according to family income and education level, it was classified as low, medium, and high (Zodpey, 2015).

Every patient was examined generally for body built, moon face, ecchymosis, skin thinning, and striae. The anthropometric measurements including height (meter), weight (kilogram), and waist circumference (WC) in centimeters were measured at a midway point between the lower costal margin and the iliac crest while the woman was standing. Central obesity was documented when WC is equal to or more than 99 cm by depending on a local study done on a healthy adult from Basra City in 2007 (A. A. Mansour et al., 2007) (A. A. Mansour et al., 2007). The BMI was determined as the weight by kilograms divided by the height at meters after squaring it. According to the BMI, women had been categories into [underweight below 18.5 kg/m<sup>2</sup>, normal weight BMI=18.5 to 24.9 kg/m<sup>2</sup>, overweight BMI=25.0 to 29.9 kg/m<sup>2</sup>, class I obesity BMI=30.0 to 34.9

kg/m<sup>2</sup>, class II Obesity BMI=35.0 to 39.9 kg/m<sup>2</sup>, and class III Obesity BMI above 40 kg/m<sup>2</sup>.] (Identification et al., 1998).

The types of GCs were including dexamethasone, prednisolone, hydrocortisone, betamethasone, triamcinolone, methylprednisolone, fludrocortisone, fluticasone, budesonide, and herbier. The name and type of GCs were searched in detail with the women according to formulations type in a lot of the cases. The pharmacological forms of GCs were labeled as (tablets, syrups, injections, creams, ointments, aerosols, drops, and nasal sprays). The dose and the period of misusing GCs were registered, but unfortunately, many of our participants were not remembering or deny the exact duration of GCs misuse.

A specific questionnaire was directed to each participant regarding general medical background including knowledge of adverse effects of GCs; steroid use is safe; guilty feeling for using these drugs; stopped from using; cause of cessation; on who was advise them first to use GCs; source the drug; which other first-degree relatives using glucocorticoids at any time previously; addiction of other drugs. They were later asked for the cause of misusing GCs (weight building, cosmetic, appetizer, pain relief, etc.).

### B. Statistical analysis

Parametric variables were normally distributed by using the one-sample Kolmogorov–Smirnov test and presented as mean and standard deviation (SD). The Chi-square test was employed for non-parametric data, while independent student t-tests and analysis of variance (ANOVA) were utilized to analyze continuous variables. Statistical Packages for Social Sciences Version 23.0 was used for data analysis (SPSS Inc., Chicago, IL, USA). The criterion for statistical significance was  $p < 0.05$ .

## III. RESULTS

The basic socio-demographic characteristics of all subjects were presented in table-1: Two hundred and fifty-one women were already misused GCs. Their mean ages were  $33.21 \pm 8.6$  years, mean BMI was  $30.68 \pm 7.3$  Kg/m<sup>2</sup> and 208 (82.9%) women were either overweight or obese, and the mean WC was  $99.85 \pm 17.0$  centimeter.

Most of the women lived in urban district 198 (78.9%), while others were from rural district 53 (21.1%), and according to marital status, 195 (77.7%) women were married, 43 (17.1%) single, seven (2.8%) widows, and six (2.4%) divorced. The majority of the participated women were housewife 181 (72.1%), while others were employees 49 (19.5%) and students 21 (8.4%).

For the education side, the participated women were arranged in literacy, primary school, secondary school, and institute or Bachelor's degree levels as 25 (10%), 96 (38.2%), 65 (25.9%), and 65 (25.9%) respectively. According to Socioeconomic status, 104 (41.4%), 142 (56.6%), and five (2.0%) women were living in low, medium, and high socioeconomic status respectively. This study recorded 28 (11.2%) pregnant, 4 (1.6%) smokers, and one (0.4%) alcohol drinker.

**TABLE 1: DEMOGRAPHIC CHARACTERS OF WOMEN WHO ARE GCS MISUSE.**

Variable		Frequencies (%)/Range
<b>Age (years) ( M±SD =33.21±8.6)</b>		Range (14-50)
<b>BMI (Kg/m<sup>2</sup>) ( M±SD=30.68±7.3)</b>		Range (14-62)
<b>BMI &lt;25 Kg/m<sup>2</sup></b>		43 (17.1%)
<b>BMI ≥ 25 Kg/m<sup>2</sup></b>		208 (82.9%)
<b>W.C (centimeter) ( M±SD =99.85±17.0)</b>		Range (65-167)
<b>WC &lt; 99 cm</b>		118 (47%)
<b>WC ≥ 99 cm</b>		133 (53%)
<b>Marital state</b>	Married	195 (77.7)
	Widowed	7 (2.8)
	Single	43 (17.1)
	Divorced	6 (2.4)
<b>Occupation</b>	Employed	49 (19.5)
	Student	21 (8.4)
	Housewife	181 (72.1)
<b>Education level</b>	Literacy	25 (10.0)
	Primary	96 (38.2)
	Secondary	65 (25.9)
	Institute or University	65 (25.9)
<b>Social class</b>	Low	104 (41.4)
	Medium	142 (56.6)
	High	5 (2.0)
<b>Place of residence</b>	Urban	198 (78.9)
	Rural	53 (21.1)
<b>Pregnant</b>		28 (11.2)
<b>Smoking</b>		4 (1.6)
<b>Drinking of alcohol</b>		1 (0.4)

Abbreviation: M, mean; SD, standard deviation; BMI, body mass index; W.C, waist circumference. Kg, kilograms. m<sup>2</sup>, meter.

The frequencies of the GCs types that were misused among participants were presented as in table (2): 77.7% dexamethasone, 19.5% prednisolone, 22.3% hydrocortisone, 21.1% betamethasone, 17.5% local GCs types, 13.5% Inhaler GCs types.

**TABLE 2: DISTRIBUTION OF SAMPLE TO GCS DRUGS TAKE**

GCs		Frequency	Percentage (%)
<b>Dexamethasone</b>	Mix with other types	195	77.7
	Pure	110	43.8
<b>Prednisolone</b>	Mix with other types	49	19.5
	Pure	3	1.2
<b>Hydrocortisone</b>	Mix with other types	56	22.3
	Pure	4	1.6
<b>Betamethasone</b>	Mix with other types	53	21.1
	Pure	11	4.4
<b>local GCs types</b>	Mix with other types	44	17.5
	Pure	1	0.4
<b>Inhaler GCs types</b>	Mix with other types	34	13.5
	Pure	1	0.4
<b>Total</b>		<b>251</b>	<b>100.0</b>

The participants' purposes for GCs misuse were presented as in fig.1: 108 (43 %) post-treatment, 48 (19.1%) cosmetic, 67 (26%) appetizer, 13 (5.2%). bodybuilding, 15 (6%) combined post-treatment and appetite.

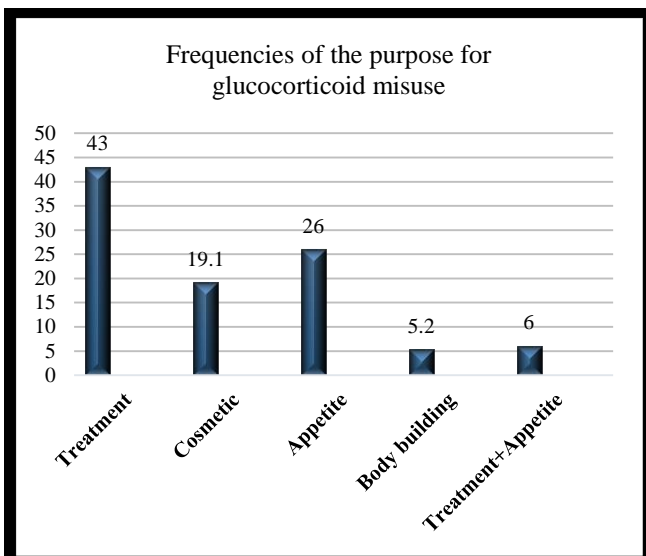


Figure 1: Frequencies of the purpose for GCs misuse among participants.

The Forms of GCs among participants were distributed as in fig.2: 26.7% tablet, 10.8% syrup, 6.4% injection, 4.4% topical, 0.4% inhaler, 37 % two forms, and 14.3% women were misusing three or more forma.

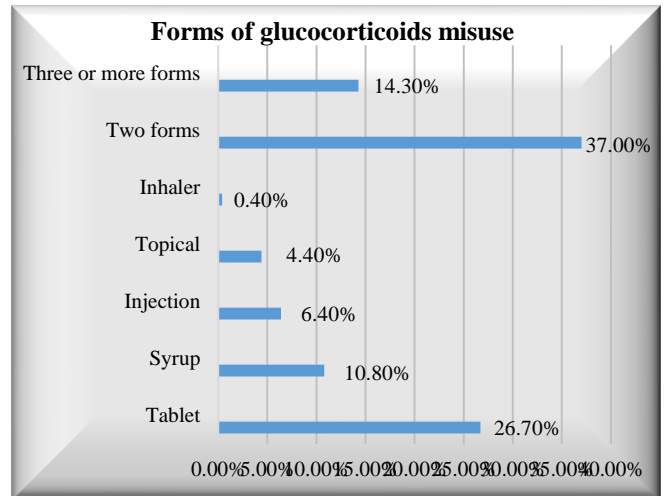


Figure 2: Forms of GCs misuse among participants.

The frequencies of those who encourage the women for misusing GCs were presented as in fig.3: 53 (21.1%) doctors, 81 (32.3%) herself, 14 (5.6%) first-degree relatives, 64 (25.5%) friends, 18 (7.2%) nursing staff, 21 (8.4%) mix of doctor and patient itself.

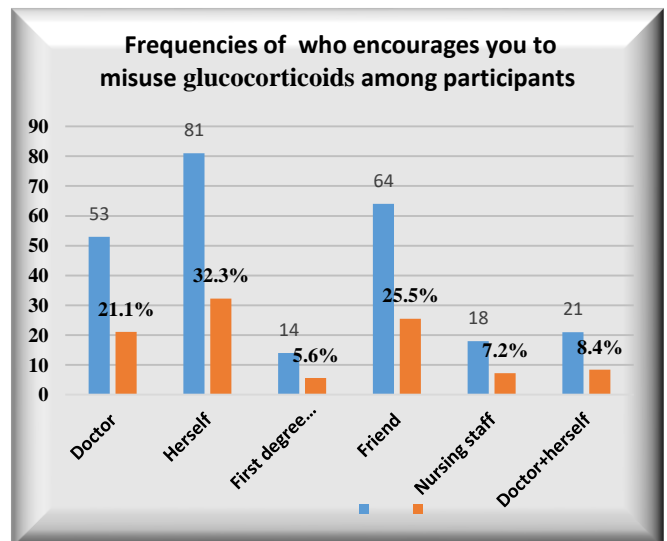


Figure 3: Frequencies of who encourages you to misuse GCs among participants.

The women were getting their GCs either from pharmacy 201(80.10%), street vendors 18 (7.20%), nursing staff 4 (1.60%), or from both pharmacy and street vendors 28 (11.20%) Fig.4.

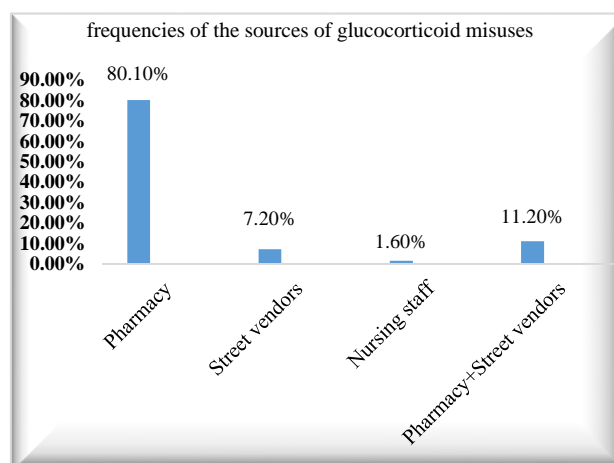


Figure 4: Frequencies of the sources of GCs misuses among participants.

The results show that the education level of the participants was having a significant effect on their knowledge of the risk of GCs ( $p=0.004$ ) Table 3.

TABLE 3: THE ASSOCIATION OF SOCIOECONOMIC CLASS OF PARTICIPANTS TO THEIR PERCEPTION OF GCS MISUSE

Variable		Social class			P value
		Low	medium	high	
<b>Knowledge of risk</b>		20 (19.2%)	43 (30.3%)	3 (60%)	0.03
<b>Steroid use is safe</b>		46 (44.2%)	59 (41.5%)	0 (0%)	0.15
<b>Feel guilty</b>		57 (54.8%)	76 (53.5%)	3 (60%)	0.96
<b>Stopped</b>		65 (62.5%)	92 (64.8%)	4 (80%)	0.73
<b>Cause of cessation</b>	Side effects	21 (29.6%)	42 (42.9%)	2 (50%)	0.24
	Doctor advice	6 (8.5%)	13 (13.3%)	0 (0%)	
	No money	2 (2.8%)	0 (0%)	0 (0%)	
	sufficiency	34 (47.9%)	33 (33.7%)	1 (25%)	
	Other cause	4 (5.6%)	6 (6.1%)	1 (25%)	
<b>Who advice you</b>	Doctor	17 (16.3%)	36 (25.4%)	0 (0%)	0.31
	Herself	42 (40.4%)	37 (26.1%)	2 (40%)	
	First-degree relative	4 (3.8%)	10 (7%)	0 (0%)	
	Friend	24 (23.1%)	37 (26.1%)	3 (60%)	
	Nursing staff	8 (7.7%)	10 (7%)	0 (0%)	
	Doctor+herself	9 (8.7%)	12 (8.5%)	0 (0%)	
<b>Cause for use</b>	Treatment	40 (38.5%)	68 (47.9%)	0 (0%)	0.28
	Cosmetic	21 (20.2%)	24 (16.9%)	3 (60%)	
	Appetite	30 (28.8%)	35 (24.6%)	2 (40%)	
	Bodybuilding	6 (5.8%)	7 (4.9%)	0 (0%)	
	Treatment+Appetite	7 (6.7%)	8 (5.6%)	0 (0%)	
<b>Source of GCs</b>	Pharmacy	84 (80.8%)	114 (80.3%)	3 (60%)	0.10
	Street vendors	4 (3.8%)	12 (8.5%)	2 (40%)	
	Nursing staff	1 (1%)	3 (2.1%)	0 (0%)	
	Pharmacy+Street vendors	15 (14.4%)	13 (9.2%)	0 (0%)	
<b>Family history of GCs</b>		40 (38.5%)	64 (45.1%)	2 (40%)	0.60
<b>Misuse of other drugs</b>	Herber	26 (25%)	37 (26.1%)	4 (80%)	0.02
	Cosmetic mixtures	21 (20.2%)	11 (7.7%)	0 (0%)	
	Herber+Cosmetic mixtures	5 (4.8%)	7 (4.9%)	0 (0%)	

#### IV. DISCUSSIONS

Most of the GCs misused women were married, housewives, and live in urban districts which agrees with a study performed in Basra City 2010 (Abbas Ali Mansour et al., 2010). Despite, more than half of these women were from a medium social class, It was clear that one third of those women were at primary school level of education and a high rate of GCs misusing among this group may be explained by the low level of education of these women expose them to deception by others and this was in agreement to a study published by Armstrong et al (Armstrong et al., 2012).

Dexamethasone was the most frequently used preparation 195 (77.7%) among participants which was consistent with that reported by fattening practices among Moroccan Saharawi women (Rguibi & Belahsen, 2006). The easy access of dexamethasone over the counter and its low price may lead to over-self-prescription of this medicine among young women for various purposes, mainly weight gain 187 (79.9%) as documented by a study done by Curtis et al (Curtis et al., 2006).

Approximately less than half (43%) of the women claimed that they first used GCs on the advice of a physician for therapeutic purposes or as an appetizer. However, it was hard to ascertain because it was unlikely here that a physician will give these dangerous drugs to weight gain, but they might continue to use GCs when they noticed symptom relief or beauty results. On the other hand, more than half of the women (cosmetic, bodybuilding, and appetizer) used GCs by themselves to become beautiful, plump, and seductive (fat body) through weight gain as being overweight was frequently regarded as being prestigious and as having an impact on forming connections or finding a spouse in society (Treloar et al., 1999). Women in the reproductive age stage are aspired to appear resolute beauty, and seek the attention of others, especially that of the opposite sex, which can be realized through having a beautiful face and body. These data were consistent with another study done in Iraq at 2010 (Abbas Ali Mansour et al., 2010), while Rguibi et al found that weight gain was the frequent cause of GCs misuse (Rguibi & Belahsen, 2006).

Topical glucocorticoids are employed as epidermis lighteners because of their powerful whitening properties as well as anti-inflammatory properties, which can help to lessen the occurrence of dermatitis when combined with other unsafe skin lightening treatments (Lagos & Maibach, 1998). The primary reason for using these medicines was to lighten the skin, which is the requirement of most women to become beautiful.

More than half of the women were using two or more forma of GCs and one-quarter of the women were misusing tablets more than other forms, this is could be due to its simple use and rapid access to reach over the counter which was as same as to the study done by fattening practices among Moroccan Saharawi women (Rguibi & Belahsen, 2006). Other forms of GCs and different routes of administration were misused at a lesser frequency including syrup, injections, and topical which agrees with a cohort

study done in Basra City at 2010 (Abbas Ali Mansour et al., 2010).

Despite the fact that these drugs can have dangerous side effects, these are supplied without a medical prescription or supervision, as well as the general population is unaware of the risks. In this study, the women's friends or first-degree relatives of the patient, and unprofessional paramedics were all held responsible for the misuse of GCs and even general practitioners could potentially be held responsible. This may also highlight the lack of understanding regarding the proper use of GCs among medical and paramedical workers. It could be a reflection of the continuing medical education program's deficiencies about this problem which matched the study of the clinical adverse effect of topical corticosteroids (Dey, 2014).

Women may be encouraged to repeat the GCs prescription themselves in different countries where such prescriptions are available over the counter, starting a vicious cycle that leads to unnecessary consequences for this problem (Farooqi et al., 1997).

Pharmacy resources whether alone or combined with street vendors were the most common access to get GCs by the participants. Street vendors were also an important resource of GCs supplement to the women. Furthermore, less than half of the participants were having at least one first-degree relative who used GCs for the same purposes which were also registered by a local study of Basrah (Abbas Ali Mansour et al., 2010).

In different nations, there are varied figures on non-prescription glucocorticoids sales in local pharmacies. Depending on a survey conducted in (Sao Paulo) Brazil at 2010, 65% of glucocorticoids sale at local pharmacies were over-the-counter (OTC) (Ferraz et al., 1996). According to the relevant figures, Iran's average medicine prescription is double that of the worldwide benchmark, and corticosteroid use climbed from 13% to 23% between 2005 and 2010 (Dehghan et al., 2020).

Pharmacy vendors, who rarely provide competent advice to the ostensibly ill patient, frequently meet client needs. Generally, pharmacy sellers fail to provide information concerning drug side effects. When they do, the accuracy of the information they receive is unknown (Ferraz et al., 1996).

Self-medication is a less expensive option for people with limited income due to those who cannot afford to pay for medical services, and it eliminates long wait times in the chronically overburdened public health system (Igun, 1987).

The relatively high rate of misuse of these drugs can be attributed to a lack of awareness of their chronic adverse effects, as well as their widespread availability at pharmacies plus their dramatic and quick response. It is necessary to plan a strategy for limiting the overuse of these drugs (Zareshahi et al., 2012).

Throughout this study, it was noted that high-income women who misused GCs were more aware of the harms of GCs, but they also use herbal and other cosmetics to become beautiful or improve their physical appearance. Money matters may play a significant effect on women's decisions

to use GCs. Women who use GCs to improve their physical appearance definitely have different reasons, and some of this may be due to the economic pressures that women confront which was consistent to the evidence from the YRBSS study group at 2011 (Humphreys & Ruseski, 2011).

As a result, the need for patient education in achieving an acceptable level of self-efficacy is widely acknowledged. Patient education has been found to be effective in knowledge of the risk of misuse of drugs and enhancing self-management which is supported by A systematic review with meta-analysis done at 2012 (Steinsbekk et al., 2012) (Fleming et al., 2011).

Some of the limitations were facing this study include: firstly, it is involving single tertiary center participants which may not support the generalization of the findings. secondly, there was a lack of precise duration and doses of misusing GCs by most of the participants so that specific dose producing a unique side effect is not studied here and further studies are required in the future.

## V. CONCLUSION

The relatively high rate of misuse of these drugs can be attributed to a lack of awareness of their chronic adverse effects, as well as their widespread availability at pharmacies plus their dramatic and quick response. It is necessary to plan a strategy for limiting the overuse of these drugs by improving patient education and self-management behavior which are the focus of international efforts to minimize morbidity and mortality. These findings highlight the importance of increased patient education on the proper use of pharmaceuticals.

Government policy and community education strategy, as well as the innovation of various programs to address drugs education and drugs misuse in the field of the school curricula, reflect concern about the rising proportion of young people that who report which use drugs as well as the need for education school-based and prevention programs.

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