



Self--Use of Skin Bleaching Products among Female Attending Family Medicine Clinic at Prince Mansour Military Hospital, Taif 2017

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

Importance: The cosmetic use of skin bleaching products is a common practice in coloured-skinned women. The use of skin lightening creams is common and widespread in the African, Asian, and North American populations. Use of skin bleaching agents has been reported in Saudi Arabia. The long-term use of these products for several months to years may cause cutaneous or systemic side-effects.

Aims: This study aimed was to assess the prevalence of self-use of skin bleaching agents among Saudi women as well as the level of awareness, attitudes and practice towards the use of these agents.

Methods: A cross-sectional study was conducted by selection of systematic random sampling of female attending family medicine clinic at Prince Mansour Military Hospital from October to December, 2017. The data collected by a structured questionnaire included information about background variables, attitudes, awareness and practice regarding the use of skin bleaching agents. The data were analyzed using statistical software to yield descriptive and inferential statistics.

Results: A total of 358 women aged between 18-55 years old were included in this study. About 25% of the women were current users of skin bleaching agents, while 39.6% were only previous

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users. Thus, more than half of these women were either current or previous users, while 12% of them used creams previously and still use it currently. About a third of women used bleaching creams as a treatment for hypo or hyperpigmented skin and 29.4% used them for cosmetic purposes. Regarding the source of these agents, 38% of women obtaining them by medical prescription and 27.8% were from a pharmacy without prescription, while the remaining women obtaining them from the market. The reason of using skin bleaching creams was varying among females, 51.6% of females used creams for increase beauty, 51% for making a new look, 6% for rising self-confidence, and 4.3% to increase the stability of marriage. About 56% of women reported that cortisone is the most dangerous component of the skin bleaching agents. About 33% of women agreed to use a quick whitening agent from an unknown source. Significant associations were detected between the use of skin bleaching agents and each of education, income, and occupation, while the associations with marital status and age were not statistically significant.

Conclusion: The lifetime use of skin bleaching agents was relatively high divided evenly into cosmetic and curative purposes. The level of awareness about these agents is low since a considerable proportion of them agreed to use agents from unknown sources. In addition to the high use of skin bleaching agents obtained without medical or pharmacist consultation.

Keywords: Skin bleaching; use; knowledge; attitudes; Saudi; women.

1. INTRODUCTION

Skin bleaching formulas refer to the use of the chemical product to lighten skin colour sometimes for therapeutic purposes but more common for the cosmetic purpose [1]. There is a high prevalence (25%-96%) of skin bleaching used in African and Asian people for several previous decades [2,3]. A significantly higher proportion of skin--lightening product users believed that lighter skin tone plays a role in self-esteem, the perception of beauty and youth, marriage and employment chances when compared with non-user, the colonial legacy in South Asia is said to be one of the contributory factors for the belief that white is dominant and white is beautiful as normally the white race was the director and the dark natives were the directed [4]. Several fairness cosmetics may include skin bleaching products like hydroquinone, high potent steroids, mercury, hydrogen peroxide and magnesium peroxide among others. These may cause many side effects including dermatological, neurotoxicity, mercury--induced nephropathy and immune-toxicity [5].

It is reported that up to 60% of those who practice skin lightening may suffer from at least one complication [5]. Health problem related to skin--lightening products add a burden on health care services and on the economy of many developing countries. In a Saudi study conducted in Riyadh region, only 26.7% of the women used bleaching products for medical purposes to treat abnormal skin hyper -pigmentation, 20.8% were ready to use any skin lightening product that

gives quick effects [6]. Evidence showed that about 45% of the tested skin--lightening cream in Saudi Arabi contained mercury at levels well above the FDA's acceptable limit of 1 ppm [7]. There is no previous study aimed to assess the prevalence skin lightening use among female in Taif area, thus this study aimed to investigate the extent of use of bleaching agents among women as well as the determinants of this use.

2. METHODS

This was a cross--sectional study design that carried out at Prince Mansour Military Hospital in Taif city from October to December, 2017. Prince Mansour Military Hospital founded in 1951 and accommodate 210 beds. The hospital provides a high--quality care in family and community medicine. Taif City is a city in the Makkah Province of Saudi Arabia at an elevation of 1,879 m (6,165 ft.) on the slopes of the Sarawat Mountains. It has a population of ≈993,8 (General Census of Population and Housing in 1435 AH). This study recruited the Saudi female attendees of family medicine clinics at Prince Mansour hospitals. The sample size was determined according to the statistics of the patient's affairs in PMH in Taif.

Epi Info Program was used to estimate the sample size given that:

1. Population size= 5500 attendees / month
2. Estimated proportion= 50%
3. Acceptable error= 5%
4. Confidence coefficient=95%
5. Minimum sample size= 359

The participants to see each day was selected using “systematic random sampling” technique with the spacing unit (K) between sample fractions equal to 3 ($40 \div 12 \approx 3$). The first patient to select at the beginning of each working day was randomly selected from the first arriving 3 patients, and then every 3rd patient was invited until the entire 12 patients had been interviewed, by the end of the day. The procedure was repeated daily in each clinic until the entire sample population has all been covered over.

The instrument of the data collection was an Arabic language self-administered questionnaire with a letter explaining the need for the study without mentioning names to ensure confidentiality. The questionnaire consisted of personal information such as age, education level, marital status, job, and income. Prevalence of use of skin lightening products, knowledge of skin-lightening products, reasons for use, application practice, and products source. Respondents’ perceptions about lighter skin use, side effects. In order to calibrate the questionnaire, the Researcher distributed the questionnaire to three consultants included a family medicine physician, a dermatologist consultant and a public health consultant.

A pilot study of 18 carried out, not included in the study subjects in order to check and ensure the clarity of the tools, identify obstacles and problems that may be encountered during data collection and the necessary modifications will be

done. After data were collected an transferred into specially design formats.

Data were collected and verified, variables were coded and entered into Statistical Package for Social Sciences (SPSS) software version 20, developed by IBM Corporation, with a help of a biostatistician. Descriptive statistics, e.g., number, proportions, cumulative proportions, mean and standard deviation, etc. will be displayed, as appropriate. Analytically, parametric and nonparametric techniques were used as required. All results of tests with p-values equal or <0.05 were considered “statistically significant.”

The Regional ethical committee approved the study protocol. Written consent was obtained from Prince Mansour Hospital administration before starting the study. Also, a consent was taken from each participant to voluntary participation in the study. Each participant was kept anonymous, and all information was used with respect the confidentiality and only the researcher, and the statistician had access to the completed questionnaires.

3. RESULTS

This study was done on females aged between 18-55 years old, with mean age $34 \text{ years} \pm 10.6$. the amount of monthly used cream was ranged between 20-180 gram with mean 41.7 ± 28 gram. The mean cost of monthly use was 210 SAR (Table 1).

Table 1. Background characteristics of the respondents

Demographical characteristics		Frequency	Percent %
Marital status (n=356)	single	72	20.2
	married	256	71.9
	divorced	20	5.6
	widowed	8	2.2
Education (n=357)	illiterate	8	2.2
	secondary or less	132	37
	university or higher	217	60.8
Occupation (n=343)	student	68	19.8
	unemployed	29	8.5
	housewife	148	43.1
	employee	98	28.6
Income (n=354)	<2000	14	3.9
	2000-5000	89	24.9
	5001-10000	168	23.2
	10001-20000	83	1.1
Age group (n=357)	<= 18	12	3.4
	19-35	181	50.7
	>35	164	45.9

This study found that about a quarter of women were currently using creams, while 39.6% previously used creams (Fig. 1). Approximately, 53% of females were either current or previous users of skin bleaching creams, while 12% of females were previous users and still creams at the time of the study. The source of bleaching

cream was reported as 38.1% of users obtain creams by medical prescriptions, 27.8% of them bought creams from a pharmacy without prescriptions, while 23.2% of them bought them from markets and 10.8% from beauty shops (Table 2).

Table 2. Practices of women using bleaching creams of the skin

	Characteristics	Frequency	Percent %
Source	medical prescription	74	38.1
	from a pharmacy without prescription	54	27.8
	from market	45	23.2
	from beauty shops	21	10.8
Composition	ready medication of skin whitening from the pharmacy	107	55.4
	a formula prepared in the pharmacy	7	3.6
	prepared in Itara	42	21.8
	cosmetic product, not medication	37	19.2
Purpose	as a treatment for hypo or hyperpigmented skin	65	30.8
	just for skin whitening	62	29.4
	both curative and cosmetic purposes	62	29.4
	not applicable	22	10.4
Use during pregnancy	yes	15	8.0
	no	172	92.0
Use during lactation	yes	58	31.4
	no	127	68.6
Frequency of use	1 per day	57	30.2
	2 per day	86	45.5
	3 per day	14	7.4

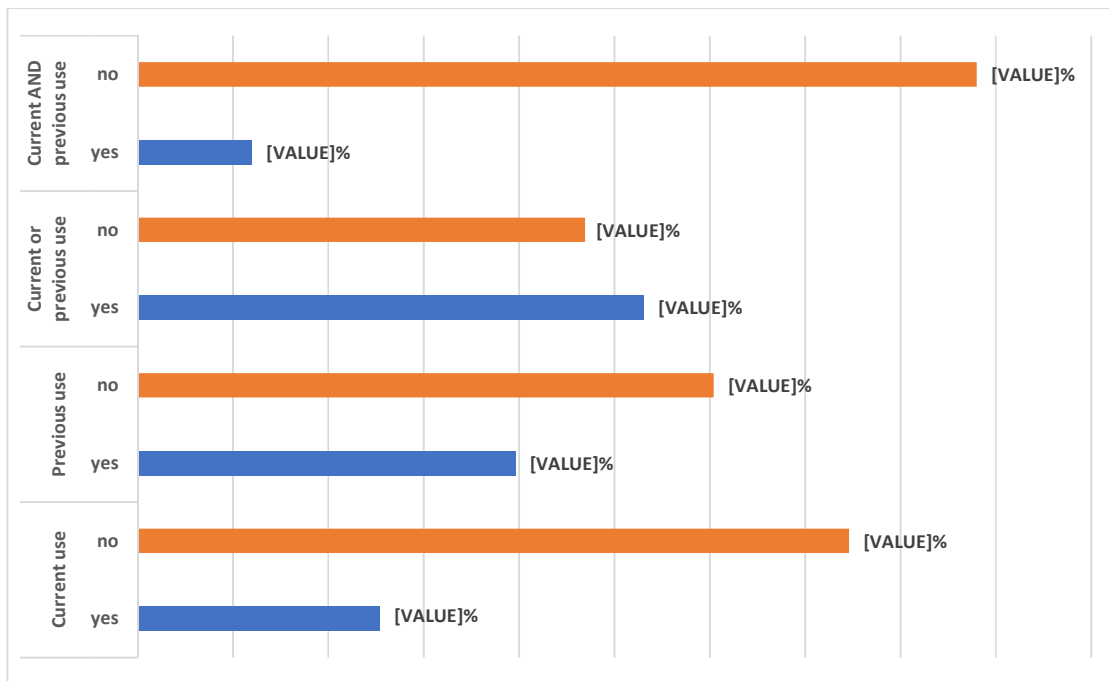


Fig. 1. The prevalence of use of skin bleaching agents among Saudi women in Taif area

In regards to the chemical composition of these bleaching creams, they were ready-made compounds found in the pharmacy in 55.4% of the cream users, while a pharmacist's prepared formula was used in 3.6% of cream users, 21.8% were prepared from a traditional formula and 19.2% were cosmetic products, not medications. About 31% of females used bleaching creams as a treatment for hypo or hyperpigmented skin, 29.4% used them only for the cosmetic purpose, while 29.4% of them used skin bleaching creams for both curative and cosmetic purposes. Regarding the use of creams during pregnancy, it was found that only 8% of females used skin bleaching creams during pregnancy, while 92% did not use them. Concerning the use of skin bleaching creams during lactation, it was found that 31.4% of females used creams during lactation, while 68.6% did not use them during lactation. The frequency of use among studied women varied widely, 30.2% used skin bleaching creams once a day, 45.5% used them twice a day, while 7.4% used these creams three times a day (Table 2).

The knowledge and attitudes among women towards using bleaching creams were explored in this study, 34.8% agreed with the use of skin bleaching creams prepared by traditional methods, while 28.9% disagreed. In addition, about 33% of women agreed to recommend the use of these creams prepared by traditional methods (Itara), while 30.8% did not agree to recommend this type of preparation (Table 3).

Reason behind the use of skin bleaching creams differed among cream users, about 31.3% of women used skin bleaching creams to increase beauty, 20.1% used them as a new look, 8% use them to increase self-confidence, 1.9% use them to increase stability of marriage and 52% because the use of such creams has perceived as a trend. About 33% of these women used creams that achieve the quick whitening effect, while 67.3% did not use this kind of cream. Approximately 24% of cream users strongly agreed that they have a desire for white skin, 51% just agreed, while 15.2% disagreed and

Table 3. Knowledge and attitudes towards using bleaching creams

Factors of knowledge and attitudes		Frequency	Percent %
Use cream from Itara (Traditional formula)	strongly agree	4	1.2
	agree	119	34.8
	I don't know	64	18.7
	disagree	99	28.9
	strongly disagree	56	16.4
Itara recommended	strongly agree	2	0.6
	agree	113	33.1
	I don't know	70	20.5
	disagree	105	30.8
	strongly disagree	51	15.0
Reason for use	increase beauty	101	31.3
	increase self-confidence	26	8.0
	increase the stability of marriage	6	1.9
	it is trend	52	16.1
	for new look	65	20.1
	Others	73	22.6
Quick whitening	yes	113	32.7
	no	233	67.3
The desire for white skin	strongly agree	80	23.8
	agree	170	50.6
	I don't know	21	6.3
	disagree	51	15.2
	strongly disagree	14	4.2
Creams cause skin problems	yes	116	33.3
	no	143	41.1
	I don't know	89	25.6
Most dangerous component	cortisone	79	22.8
	mercury	1	0.3
	fruits acids	135	38.9
	Salicylic acid	132	38.0

Table 4. associations between demographics and (current or previous use) of bleaching creams

		Current or previous use		P value
		Yes (%)	No (%)	
Marital status	single	38 52.8%	34 47.2%	0.438
	married	116 45.7%	138 54.3%	
	divorced	9 45.0%	11 55.0%	
	widowed	2 25.0%	6 75.0%	
Education	illiterate	1 12.5%	7 87.5%	0.001
	secondary or less	54 40.9%	78 59.1%	
	university or higher	134 62.3%	81 37.7%	
occupation	student	32 47.1%	36 52.9%	0.024
	unemployed	17 58.6%	12 41.4%	
	housewife	70 47.3%	78 52.7%	
	employee	63 65.6%	33 34.4%	
Income	<2000	5 35.7%	9 64.3%	0.002
	2000-5000	43 48.3%	46 51.7%	
	5001-10000	80 47.6%	88 52.4%	
	10001-20000	59 72.8%	22 27.2%	
	>20000	2 50.0%	2 50.0%	
Age group	<= 18	7 58.3%	5 41.7%	0.245
	19-35	102 57.0%	77 43.0%	
	>35	79 48.2%	85 51.8%	

4.2% strongly disagreed. This study found 33.3% of females thought that skin bleaching creams cause skin problems, 41.1% thought they did not, while 25.6% did not know that creams cause skin problem (Table 3).

In regards to the associations between demographics and (current or previous use) of skin bleaching creams, the association between marital status in one side and the current or previous use in another side was not statistically significant (P value = 0.438). However, the association between educational level and current or previous use was statistically significant (P value = 0.00). About 62% of women with university or postgraduate degree were either current or previous users of skin

bleaching creams in comparison to 41% of women with secondary school or less and only 13% of illiterate women.

In addition, the association between occupation and current or previous use was significant (P value = 0.024). women who were employed were had the highest either current or previous prevalence of skin creams use. The association between income and current or previous use was significant (P value = 0.002). Women with income more than 1000 SAR had the highest percentage of bleaching cream use currently or previously. While the association between age group and current or previous use was not statistically significant (P value = 0.245) (Table 4).

4. DISCUSSION

The cosmetic use of skin bleaching products is a common practice in dark-skinned women [8]. The use of skin lightening creams is common and widespread in the sub-Saharan African population [9], also it has been reported in many parts of the world such as Saudi Arabia [10]. The long-term use of these products for several months to years may cause cutaneous or systemic side-effects [11].

The prevalence of the current use of topical bleaching agents in our study (12%) is comparable with other prevalence studies carried out in Nigeria and Senegal. The studies conducted in Nigeria and Senegal showed that the use of cosmetic bleaching products ranged from 53% to 59% of people surveyed [12,13]. About 31.3% of females use bleaching creams to increase their beauty, this is because of that even skin colour is considered a universal sign of youth and beauty [14].

The mean monthly cost of bleaching agents was 210 SAR among studied women, the cheaper cost of such uncontrolled products is likely to be the main reason for their trade [15]. The mean duration of use was 2.44 months, this was not in agreement with Del Giudice et al. [15], in which the mean duration of use was 50.5 months while a few women had used bleaching creams for longer periods, e.g. 20 years. The possible result of such extensive use is the occurrence of cutaneous adverse effects. The number of bleaching products used each month in our study ranged between 20 and 180 g (mean 41.7 g /month), which was compared with another study conducted in Saudi Arabia in which the number of bleaching products used each month was ranged between 2 and 600 g (mean 90.09 g /month)[6]. In Nigeria, the quantity varied from 60 to 150 g /month, while in Senegal, the quantity ranged between 15 and 350 g / month [12,13]. The resultant mean of 41.7 g in our study seems quite enough, as 45 g of cream is required on average to cover the whole body [6].

Among the female adult population the use of bleaching creams was higher in single females this was not in agreement with a study done by Pitcher et al. [9], this may be because of that they want to increase beauty to increase their chance of getting married. Use of bleaching creams was also higher (50%) in females with higher income, this was in agreement with a study done by Pitcher et al. [9]. While it

disagreed with Alghamdi et al. [6] where there was no association between income and the use of bleaching products. However, it was expected that women with higher incomes would be the ones capable of paying for such cosmetic products. About 35% of women in this study agreed to use cream from Itara (traditional formula), it may be attributed to easy accessibility and availability of traditional products on the streets or in marketplaces. They are sold without any medical prescription and control, and imported from neighbouring countries [9], in comparison with Alghamdi et al [6] study where about 75% of the bleaching products used were not obtained by a medical prescription. This surprisingly high percentage reveals the inadequate ways of obtaining such products and further highlights the importance of managing the problem.

Only 8% used skin bleaching creams during pregnancy, while 92% did not use it during pregnancy, that's because pregnancy is associated with a particular risk for skin-bleaching use, especially in the last trimester [16]. About 31% of women used bleaching creams during lactation. The pictures were more gloomy in Senegal where 81% of the women carried on with their use during pregnancy and 87% did so during lactation [12,13].

About one-third of females were aware that bleaching creams cause skin problems, 41% disagree with the statement that they can cause skin problems, while 25.6% of women did not know whether it can cause skin problems or not. However, the nature and methods of use of skin-lightening products, which are often applied to the whole body over a number of years, expose users to certain additional risks, connected with the passage into the systemic circulation of the active constituents in question. Thus, it appears increasingly clear that the cosmetic use of such products for the purpose of skin bleaching carries serious general risks and some behaviours appear particularly dangerous [16].

5. CONCLUSION

The lifetime use of skin bleaching agents was relatively high divided evenly into cosmetic and curative purposes. The level of awareness about these agents is low since a considerable proportion of them agreed to use agents from unknown sources. In addition to the high use of skin bleaching agents obtained without medical or pharmacist consultation.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the author(s).

COMPETING INTERESTS

Author has declared that no competing interests exist.

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