Nursing Guidelines on Hair Dandruff Symptoms for adult patients

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Abstract: Dandruff is a chronic condition that can almost always be controlled, it is a common scalp disorder, and it can be an embarrassing hair problem. The aim of this study was to evaluate the effect of nursing guidelines on hair dandruff symptoms for adult patients. Design: A quasi-experimental design was used to conduct this study. Setting: The study was conducted at the Dermatology Outpatient Clinic of El-Demerdash Hospital in Ain Shams University. Sampling: A purposive sample including 72 hair dandruff adult patients, which represent 20% of last year attended adult patients' complaining from this problem. Tool: A structured interview questionnaire included demographic characteristics of hair dandruff patient, current symptom, patient's knowledge and practices regarding their hair dandruff. Results: the study group included 16.6% males and 83.4% females. The mean age was 27.6±6.1, the patients' entire symptoms improved after implementation of nursing guidelines instructions, with highly statistically significant differences between pre/post guidelines implementation ($p<0.001$) regarding level of knowledge and practices. There was a highly statistically significant correlation between level of knowledge and level of practices as poor level of knowledge was associated with inadequate practices (r= 0.78). Conclusion: The implementation of nursing guidelines' instructions had improved patients' hair dandruff symptoms, with highly statistically significant differences between pre/post tests ($p<0.001$) regarding level of knowledge and practices, which indicated to a well observed improvement of patients' symptoms related to hair dandruff. This had proved by the differences between pre/post program implementation which showed highly statistically significant differences in all the tested items. The study recommends for increasing health awareness about the importance of hygiene practices as it is a blueprint for prevention and treatment of dandruff.

1. Introduction:

Dandruff is an over production and build-up of dead skin cells. It occurs as snowy dust-like flakes. Dandruff can also be defined as the shedding of dead skin cells from the scalp at an excessive rate. This is the result of normal growing process of the skin cells of the scalp. The scalp and the rest of the body are covered with skin cells. As the skin renews itself, the top layer of old cells die and scales off. Normally, the entire renewal process takes 2–3 weeks. In some cases, there is an increased production of cells, causing the dead ones to pack together and build up as dandruff on the scalp (Faergemann *et al.,* 2007).

Dandruff is a common scalp disorder affecting almost half of the post pubertal population regardless of ethnicity and gender and has several causes including non-microbial and microbial factors. The potential non-microbial causes for dandruff are excessive exposure to sunlight, minimal irritation of the scalp due to over shampooing, improper rinsing of hair, wrong diet plan and firm fitting hats and scarves, frequent combing, use of certain cosmetic products,

and exposure to dust and dirt. The microbial that is most widely accepted is the presence of lipophilic yeast belonging to the genus Malassezia (Ranganathan, & Mukhopadhyay 2010).

The prevalence of dandruff across the world was up to 50% in the general population (Ranganathan, & Mukhopadhyay 2010). The prevalence may be increasing sharply with rapid urbanization. On the contrary, the prevalence of pityriasis versicolor is only 2–8%. A survey in the USA has shown that about 50 million people suffer from dandruff, and that nearly $300 million is spent on various dandruff treatment products annually (Weedon, 2007).

People with oily hair tend to have dandruff more often. In most cases, dandruff can be self-diagnosed without the aid of a physician. Dandruff usually does not require medical treatment. However, if, in addition to dandruff, a person also has greasy scaling on the face, eyebrows and eyelashes; and thick red patches on the body, when inflammatory changes such as erythema and pruritus are seen along with scalp

flaking, the clinical picture is typical of seborrheic dermatitis (Park *et al.,* 2012).

Of the risk factors of dandruff is age which usually begins in young adulthood and continues through middle age. Being male is also anther risk factors because more men have dandruff; some researchers think male hormones may play a role in dandruff. Men also have larger oil-producing glands on their scalps, which can contribute to dandruff. Malassezia feeds on oils in the scalp. For that reason, having excessively oily skin and hair makes more prone to dandruff. Poor diet, diet lacking foods high in zinc, B vitamins or certain types of fats may be more likely to have dandruff (Weston, 2010).

Dandruff may also be triggered or made worse by poor hygiene and infrequent shampooing and washing. The immune system may also play a part in dandruff. Although using lotions that contain alcohol, Obesity mild dandruff is a very common condition in many people with a normal immune system (Goldberg, 2010; Berger, 2011).

Stress can cause various health problems including dandruff. It has been found that the incidence and severity of dandruff begins to ease off once the underlying causes for the stress are addressed and resolved. So, if patient suffer from dandruff, it is essential to them learn to manage stress. Stress level can be reduced through exercise, meditation and so on. At the same time, the patient tries to have adequate sleep of seven to eight hours (Nina, 2013).

For sufferers from dandruff, little sunlight is a must. Sunlight promotes the production of vitamin D3 and also helps to promote the production of healthy oils in the skin. If patient wish to get rid of dandruff, make it a point to spend a few minutes in the sun each day in the morning or late evening. Keep head exposed but take precautions to protect the exposed skin of the face and arms to avoid sun tan (American Academy of Dermatology, 2010).

In order to eliminate dandruff, it is very essential to follow a very strict diet plan. It is recommended eating vitamin B enriched food products as it will stabilize the scalp and give extra nourishment to the scalp. Other food products that can be consumed when suffering from dandruff are shellfish, red meat, sunflower seeds, sardines, salmon, water based fruits and vegetables. It must also avoid oily and greasy food products, sugar, junk foods, animal fats, flour, and seafood. It is also recommended to adopt a well-balanced diet, with emphasis on raw foods, especially fresh, fruits and vegetables to avoid scalp dryness and flaking (Timby & Smith 2011).

Drinking water, along with a strict diet plan, is also very essential to keep the body free from toxins and other harmful products. Experts recommend drinking eight to ten glasses of water daily in order to keep the body well hydrated, also trying to limit the consumption of alcohol and coffee (Weston, 2010).

The severity of dandruff may fluctuate with season as it often worsens in winter. Those affected by dandruff find that it can cause social or self-esteem problems, indicating treatment for both psychological and physiological reasons (Hill, 2003 & Grimalt, 2009). The scaly scalp may look unhygienic and untidy. It could make the sufferer feel self-conscious and embarrassed. Dandruff affects the self-esteem and confidence. Itching due to dandruff also causes great embarrassment to the sufferer in public. Dandruff causes more social and psychological problems than medical ones (Jennifer, 2011).

According to the WHO (2009) report, hygiene practices that are low cost activities can be quite effective in keeping persons healthy. Hence the nurse is an important advocate in helping the patient understand the nature of health problems and help them to overcome this problem, so it is crucial to investigate this problem, The nurse always being focused on improving health of people in the community, good hair care is important as a morale booster and for maintaining hair clean and attractive.

Significance of the study.

Dandruff is a very common condition found in a vast majority of people. In majority of cases dandruff can be controlled by simple nursing remedies and taking care of the scalp. The prevalence of dandruff in the Egypt population was high (13,992,172) (WHO 2013). Dandruff is considered as very frequent, and appears to be more frequent among men than women and more frequent among young people than older people (Misery *et al.,* 2013). More than 70 percent of dandruff sufferers agree that they feel less confident when they know that their scalp is flaking and they have to meet someone important (Turner *et al.,* 2012).

So, there is a great need to conduct such type of research, which might assist such patients to safely and effectively manage this problem and its associated symptoms.

Aim of the study:

The aim of this study was to evaluate the effect of nursing guidelines on hair dandruff symptoms through:

- Assessing level of knowledge and practices of patients regarding to hair dandruff to identify their needs detected.
- Developing and implementing nursing guidelines based on detected and prioritized health needs and problems.
- Evaluating the effect of the nursing guidelines on patients' improvement of their knowledge, practices and hair dandruff symptoms.

Hypothesis:

The current study will test the following hypothesis:

Nursing guidelines for patients will improve their knowledge, practices and hair dandruff symptoms.

2. Subjects and Methods:

Research design:

A quasi-experimental design was used to conduct this study.

Research setting:

The study was conducted at the Dermatology Outpatient Clinic of El-Demerdash Hospital in Ain Shams University.

Subjects:

The sample of the study was purposive; it included 72 hair dandruff adult patients, which represent 20% of last year adult patients attending the outpatient clinic complaining from this problem. (The total number of last year was 360 of Dermatology Outpatient Clinic of El-Demerdash Hospital). The researcher visited the outpatient clinic to select cases until the defined number was reached taking into consideration the following criteria for the hair dandruff patients:

Free from seborrheic dermatitis, topic dermatitis, and scalp psoriasis. Free from other concomitant medical conditions.

Technical design:

Tools:

1.   A structured hair dandruff patients interview questionnaire:

Developed by the researchers, based on current and previous literature review, it consisted of 4 main parts designed in Arabic language,

The first part included demographic characteristics of hair dandruff patients, (sex, age, educational level, occupation and duration of complaint, using of hair styling, hair spray, pomades (gel).

The second part is concerned with hair dandruff patients' current symptom of hair dandruff.

The third part dealt with hair dandruff patients' knowledge regarding hair dandruff. It included questions that cover the definition, types, signs and symptoms, causes, risk factors, complications, treatments, self care, diet, control and prevention.

The knowledge score was classified as correct answers scored as 2 for each item, 1for incomplete answers, zero for each incorrect answers item which represent: 60%and more considered satisfactory and less than60% was considered unsatisfactory.

The fourth part dealt with the hair dandruff patients' stated practices; this part included 20 close-ended questions including, daily washing hair with warm water to avoid a layer of dead cells, clean scalp and hair with enough shampoo lather, rinse scalp and hair carefully from shampoo lather, shower or bathe with mild soaps, use anti-dandruff shampoo not powerful chemicals, change shampoo every 6 months to avoid fungus resistance, take balanced diet, reduce the quantity of fatty junk and fried food, take about 8-10 glasses of water for protection of scalp formation, brush and comb should be cleaned on regular basis, daily massage to head scalp, Avoid sleeping with wet hair, avoid anxiety and stress, use relaxation technique as deep breathing, meditation, expose hair to sun shine ultraviolet 9-11am, avoid more oil & oily products on scalp, avoid hair sprays, gels and irritating shampoo or soaps for males, avoid cover hair with polestar scarf for females, avoid use of under scarf or small hat for long time, and avoid excessive use of styling products. (Using questionnaire was due to that some items were not easy to be observed by the researchers and this may be done at any time during the 24 hrs of the day).

Scoring system for the patients' stated Practices was classified as correct answers scored as 2 for each item, zero for each incorrect answers which represent: 60%and more considered satisfactory and less than60% was considered unsatisfactory.

Content and face validity were performed by 3 professors in the field and one lecturer from the Dermatology Department Faculty of Medicine, all experts were affiliated to Ain Shams University, Egypt.

- The developed tool was tested for reliability on a sample of ten subjects, test-retest results revealed that, all items were significant and have a correlation coefficient above the significant level (r= 0.8).

Administrative Design and ethical consideration:

Permission for conduction of the study was obtained by submission of an official letter issued from the Faculty of Nursing, Ain Shams University to the administrator of El-Demerdash Hospital.

It was necessary for the researcher to get consent of the hair dandruff patients. So, the researcher introduced herself and a simple explanation about the objectives of the study was given to them. They were assured that their participation in the study is voluntary and that collected data will be treated confidentially and will be only used for the purpose of the study and to improve their health.

Operational Design:

Field work:

A review of the current and past available literature, covering the various aspects of the problem, using textbooks, articles, magazines and internet search, was done. This was necessary for the researcher to get acquainted with, and oriented about aspects of research problem, as well as to assist in the development of data collection tools and the preparation of the nursing guidelines program.

A pilot study was carried out on 5 cases with hair dandruff. They were chosen randomly to test applicability, clarity and consistency of the tools using the interviewing questionnaire as a pre-test. Based on the findings, modifications were made on the tools, in order to be more applicable to the patients with hair dandruff. Some items were omitted or added as needed. The final forms of the tools were then obtained and the time needed for completing them was also determined. Patients who shared in the pilot study were included in the main study subjects as no major modification was done.

All tools were used to get a baseline assessment for the hair dandruff cases prior to the development of the program. The interview questionnaire was used after the nursing guidelines' implementation, in order to compare between the results (pre/post-tests) and to determine the improvement in knowledge, practice, in addition to hair dandruff symptoms.

The researchers visited the Outpatient Clinic from the beginning of October 2012 till the end of March 2013, twice a week (Tuesdays & Thursdays) according to time available to the researchers. From 9.00 a.m. to 2.00 mid-day to get new cases in Dermatological Outpatient Clinic of El-demerdash Hospital.

Nursing guideline development phases:
Guidelines development has 4 phases.

Phase I: Based on the results obtained from the previous tools, as well as reviewing current literature review, the guideline instructions were developed by the researchers.

Phase II: Designing the guidelines:
Objectives of designing nursing guidelines program to improve patients' level of knowledge and practices about hair dandruff, and their hair dandruff symptoms.

The content of a nursing guidelines program is based on needs assessment of hair dandruff patients include, definition of dandruff, types, causes, symptoms, risk factors, complications, self-care for control, and prevention of dandruff.

The important components of nursing guidelines program are:
- Hair dandruff concept.
- How to use shampoo.
- Procedures necessary to implement cleaning hair.
- Routine practices essential to control of dandruff such as washing hair regularly.
- Regular use of anti-dandruff shampoos.
- Control of stress.
- Relation between dandruff and food.
- Components of diet.
- Exposure the scalp to the morning sun shine ultraviolet.

- Precautions for control of hair infections.
- Limits for use of hair styling products.
- Self-care for control, and prevention of dandruff.
- Identify of hazards and minimizing risks.

Phase III: Implementation of the program:
Implementation of the program was carried out at the Dermatological Outpatient Clinic of El-demerdash Hospital.

At the beginning of the first session, an orientation to the program and its purpose was presented. Each session started by a summary about what had been given through the previous session and the objectives of the new topics, taking into consideration the use of simple language to suite the level of patients. Also hair dandruff patients', practices as; brushing hair from scalp down with steady, how to use dandruff shampoo, exposure the scalp to the morning sun, healthy food habits, stress free, and massage the hair, were taught correctly by the researchers with every session.Using video and picture as educational aids.

Subjects and materials used had been sequenced through 3 sessions (90 minutes) (time of each session ranged between 20 to 30 minutes). Lectures ended within 3 months weekly meeting with the patients based on the program implementation.

The sessions:
- Session1 contained definition of dandruff, types, causes, regular use of shampoo, brushing and combing, procedures necessary to implement cleaning hair, and how to reduce itching.
- The second session contains symptoms, risk factors, complications of dandruff, method of hair massage, relation between dandruff and food, components of diet, hazards and minimizing risks of dandruff, and control of stress.
- The third session contains self-care for control, and prevention of dandruff. Routine practices essential to control of dandruff such as washing hair regularly, exposure the scalp to the morning sun, limits for use of hair styling products.

The hair dandruff study subjects were present all the time of the guidelines sessions.

The nursing guidelines were implemented for the patients at the suitable time for them according to their availability, sometimes the session was held for one or more patients. To insure that they were exposed to the same learning experience, they received the same nursing guidelines content and used the same teaching strategies in simple Arabic languages as lecture, discussion, consulting with hair dandruff patients, problem solving, explaining, demonstrating, with illustrations of practical part, and written nursing guidelines booklet.

Direct reinforcement in the form of a copy of the guidelines instructions was given as a gift for each patient to use it as a future reference. All the participants were cooperative with researchers.

Phase VI: Evaluation phase:

The evaluation phase was done one month post implementation of the nursing guidelines by comparing changes in patients' knowledge, practices, and symptoms of dandruff, in order to identify differences, similarities and areas of improvement as well as clinical defects, by predetermined appointment through phone from 9.00 a.m. to 2.00 p.m. during the working time of the clinic.

Statistical Design:

All categorical variables were pre-coded in the data sheet and were presented as percentages in the results.

Quantitative data were summarized by means and standard deviations. Categorical (qualitative) data were expressed as percentages that were compared by a chi-square test, r-test for correlation. The threshold of significance was fixed at the 5% level.

Significance of results was considered as follows:
$P< 0.01$ Highly significant.
$P <0.05$ Significant.
$P > 0.05$ Not significant.

3. Results

Table (1) shows that, the study group included 12 males (16.6%) and 60 females (83.4%). With a mean age of 27.6±6.1. Regarding the educational level, 33.3% of them were secondary/technical education and more than two fifths were university phase. Workers/employees represented 36.2% of the study group. According to duration of complaint, 50.0% of the study group complains from less than 3 years, and 58.2% and 66.6% of study subjects use hair styling products and hair spray or pomades (gel). (respectively).

Table (2) shows the percentage distribution of hair dandruff patients' symptoms, pre/post guidelines' implementation, According to the present complaints, the table shows that pre guidelines' implementation, all patients (100%) were suffering from white flakes on shoulders of dark clothing and oily scalp and facial skin with dry flakes, while 77.7% of them complained of itchy scalp, and 55.5% of the patients complained of hair fall. However, all symptoms improved after nursing guidelines instructions' implementation, with statistically significant difference between before and after nursing guideline instructions' implementation ($X^2 = 23.4$ at <0.001).

Table (3) shows significant differences in hair dandruff patients' level of knowledge post-test compared to pre-test regarding definition, types, symptoms, causes, risk factors, complications, self care for control, relation between diet and dandruff,

and prevention and protection from dandruff, with marked improvements about all items of hair dandruff post guideline implementation.

Table (1): Distribution of hair dandruff patients' demographic characteristics (n=72).

Characteristics	No.	%
Sex:		
Male	12	16.6
Female	60	83.4
Age in years:		
18-	52	72.3
30-	14	19.4
40-43	6	8.3
Mean age(±SD) 27.6±6.1		
Duration of complain(year):		
1-	36	50.0
3-	20	27.8
5-	16	22.2
Educational level:		
Read & write/basic-education	18	25.0
Secondary/technical	24	33.3
University	30	41.7
Occupation:		
Student	36	50.0
Worker/employee	26	36.2
Unemployed	10	13.8
Using of hair styling products.	42	58.2
Using of hair spray or pomades(gel) Male no(12)	8	66.6

Fig (1) reveals that, after nursing guidelines implementation a significant improvement was obvious in the hair dandruff patients' total correct knowledge. There was a statistically significant differences in the patients' correct knowledge scores post-test from 77.8% unsatisfactory to 83.3% satisfactory ($X^2 = 27.0$ at <0.001).

Table (4) represents distribution of hair dandruff patients' level of practices to prevent and control hair dandruff pre/post-tests. The table shows that there was statistically significant improvement in post-test compared to pre-test for the study group (p< 0.001). Practices in case of hair dandruff were daily washing hair with warm water until dandruff disappears, and daily massage to head scalp 61.1% & 41.6% respectively post-test compared to 00.0% in pre-test. As well, avoid sleeping with wet hair and avoid anxiety and stress (83.3% & 50.0% respectively in post-test compared to 50.0% & 27.7 % respectively in pre-test). In relation to the ways to prevent and control hair dandruff as exposing hair to sun shine ultraviolet (30.5% vs. 83.3% at pre/post tests), reduce the quantity of fatty junk and fried food(15.0% vs. 83.3% at pre/post tests), avoid hair sprays, gels and irritating shampoo or soaps(33.3% vs. 100.0% at pre/post tests), and avoid covering hair with polestar scarf(60.0% vs. 100.0% at pre/post tests), which markedly improved in post-test compared to pre-test (*p*<0.001).

Fig (2) shows statistically significant improvement in total post-test than pre-tests regarding hair dandruff patients' correct practices, for the study group, to prevent and control hair dandruff, ($p<0.05$).

Table (5) shows the correlation between patients' correct level of knowledge and their practices in relation to hair dandruff. There was a strong correlation between level of knowledge and level of practices as poor level of knowledge was associated with inadequate practices (r= 0.78).

Table (6) reveals that, there is no correlation between patients' level of education and their level of knowledge, as most of the study subjects had unsatisfactory level of knowledge before nursing guidelines (r = 0.43).

Table (7) indicates that, there is no correlation between patients' level of education and their level of practices, as most of the study subjects had unsatisfactory level of practices before nursing guidelines (r= 0.41).

Table (2): Percentage distribution of hair dandruff symptoms among the studied subjects, pre/post guidelines' implementation (n=72).

items	No.	%	No.	%	X^2	*p*-value
Symptom of hair dandruff (Patient with complaints)						
1. White flakes on shoulders of dark clothing	72	100.0	20	27.7		
2. Itchy scalp	56	77.7	26	36.1		
3. Dry flakes behind areas & itching	22	27.5	12	15.0	23.4**	<0.001
4. Oily scalp and facial skin with dry flakes	72	100.0	60	83.4		
5. Eyebrow dandruff	4	5.6	72	100.0		
6. Hair fall	40	55.5	20	27.7		

Table (3) Percentage distribution of patients' level of knowledge about hair dandruff pre/post tests (n=72)

| Items	Satisfactory level			
	Pre-test		Post-test	
	No.	%	No.	%
Definition	-	--.-	68	94.4
Types	-	--.-	60	83.3
It is an infected disease?	6	8.3	72	100.0
Symptoms	56	77.7	72	100.0
Causes	10	13.8	64	88.8
Risk factors	10	13.5	60	83.3
Complications	-	--.-	64	88.8
Self care for control	4	5.5	68	94.4
Relation between diet and dandruff	-	--.-	64	88.8
Prevention and protection from dandruff	12	16.4	72	100.0

N.B: Sample is mutually exclusive
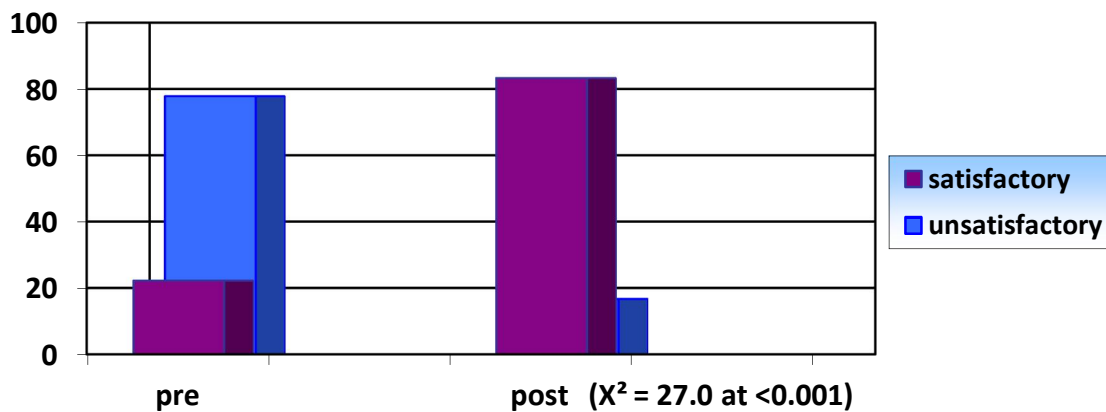
Fig (1): Comparison of hair dandruff patients' total level of knowledge for the studied subjects pre/post tests (n=72)

Table (4): Distribution of hair dandruff patients' level of practices pre/post tests as stated by the patients (n=72)

Items	Pre-test No.	Pre-test %	Post-test No.	Post-test %	test X^2	test p- value
Daily washing hair with warm water to avoid a layer of dead cells.	-	--	44	61.1	218.3	
Clean scalp and hair with enough shampoo lather	20	27.7	68	94.4		
Rinse scalp and hair carefully from shampoo lather	16	22.2	72	100.0		
Shower or bathe with mild soaps	50	69.3	72	100.0		
Use anti-dandruff shampoo not powerful chemicals	40	55.5	68	94.4		
Change shampoo every 6 months to avoid fungus resistance	4	5.5	50	69.4		
Take balanced diet	12	15.0	60	83.3		
Reduce the quantity of fatty junk and fried food	12	16.6	60	83.3		
Take about 8-10 glasses of water for protection of scalp formation	22	30.5	64	88.8		
Brush and comb should be cleaned on regular basis.	40	55.5	60	83.3		
Daily massage to head scalp	-	--.-	30	41.6		
Avoid sleeping with wet hair	36	50.0	60	83.3		
Avoid anxiety and stress	20	27.7	36	50.0		
Use relaxation technique as deep breathing, meditation	20	27.7	50	69.4		
Expose hair to sun shine ultraviolet in the morning or late evening.	22	30.5	60	83.3		
Avoid more oil & oily products on scalp	40	55.5	60	83.3		
Avoid hair sprays, gels and irritating shampoo or soaps. (males= No 12)	4	33.3	12	100.0		
Avoid cover hair with polestar scarf. (females= No 60)	36	60.0	60	100.0		
Avoid use of under scarf or small hat for long time. (Females. No =60)	50	83.3	60	100.0		
Avoid excessive use of styling products	30	41.6	64	88.8		
						<0.001

N.B: Number of males n=12vs.female n=60.
N.B: Sample is mutually exclusive

	pre	Post
■ Adequate	16.6	88.8
■ Inadequate	83.3	11.2
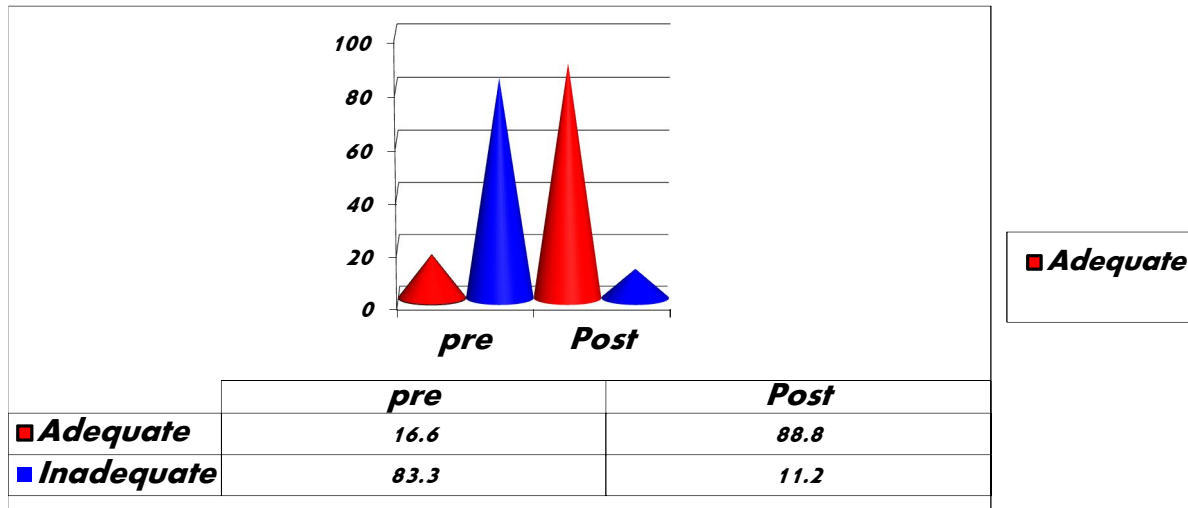
(X^2 = 15.0 at <0.05)
Fig (2): Comparison of hair dandruff patients' total practice scores for the group pre/post nursing guidelines (n=72)

Table (5): Correlation between patients' hair dandruff knowledge and their practices.

Patients' Practice Level	Hair Dandruff Patients' Level of knowledge (n=72) Satisfactory n=14		Unsatisfactory n=58		Total	r-test
Adequate	10	13.9	14	19.4	24	
Inadequate	4	5.6	44	61.1	48	0.78**

Table (6): Correlation between patients' hair dandruff level of knowledge and their level of education.

Patients' Education Level	Hair Dandruff Patients' Level of knowledge (n=72)				Total	r-test
	Satisfactory		Unsatisfactory			
	n=14		n=58			
University	8	57.1	22	37.9	30	
Secondary	6	42.9	18	31.1	24	0.43
Read & write	-	--.-	18	31.1	18	

Table (7): Correlation between patients' hair dandruff level of practices and their level of education.

Patients' Education Level	Hair Dandruff Patients' Adequate Practices (n=72)				Total no.	r-test
	Satisfactory		Unsatisfactory			
	n=24		n=48			
University	12	50.0	18	37.5	30	
Secondary	8	33.3	16	33.3	24	
Read & write	4	16.7	14	29.2	18	0.41

4. Discussion

The current study was carried out to evaluate the effect of nursing guidelines on hair dandruff symptoms. Dandruff adherence to hair shafts is a visible annoying phenomenon. Regarding socio demographic data of patients, the present study revealed that, the mean age of the study sample was 27.6±6.1; 16.6% of them were males, while 83.4% were females (Table 1).This result is incongruent with Frederick and Ranganathan(2011), who mentioned that as far as sex incidence of dandruff is concerned, male population is more susceptible than female population. This finding is also incompatible with Lorette *et al.* (2006), who found that, the study population included 101 men and 88 women, aged on average 39.33 ± 1.02 years (range 19 to 78 years). In another study hold by Ashtiani *et al.* (2013), population were, 120 volunteers (60 men and 60 women) aged 18–75 years, who suffered from dandruff, were recruited into their study. As well in the study carried out by Misery *et al.* (2013), the prevalence of dandruff decreased with age, 21.6% in the age range 15–24 years, 19.7% in the age range 25–34 years, 17.4% in the age range 35–49 years, 14.3% in the age range 50–64 years, and 11.7% among people over 65 years old ($p < 0.01$).

The current study result might be due to that, most of the study subjects were females in pubertal stage and are conscious of their appearance, and females in Egyptian society are constantly abused of their scalp with various products to improve their grooming dignity and appearance.

Regarding using of hair styling products, more than half of patients under study were using hair styling products and two thirds of them were using of hair spray or pomades (gel). In a similar study, Paltiel (2013) mentioned that dandruff can be a manifestation of an allergic reaction to chemicals in hair gels/sprays, hair oils, or sometimes even dandruff medications like ketoconazole. This result could be due to that people with oily scalps tend to suffer most from dandruff because an oily scalp supports the growth of yeast, which is crucial to the generation of scales. Paltiel **(2013) reported** that causes of excessive dandruff could be varying from hereditary reasons to tension and anxiety. Excessive usage of hairsprays, improper electric hair curlers, tight fitting hats and cold weather are the other known causes.

In the present study, regarding to patients signs and symptom of hair dandruff, all the patients were suffering from white flakes on shoulders of dark clothing and oily scalp and facial skin with dry flakes. More than three quarters of them were complaining of itchy scalp, while more than half of them were complaining of hair fall, which significantly reduced post nursing guideline implementation (Table 2). This might be due to the simple and easy nursing guidelines employed. The finding of this study is consistent with that of Rockoff and Shiel (2013), who mentioned that hair dandruff does not cause permanent hair loss. On the same line, Ahmed *et al.* (2007), who studied dandruff patients to provide an overview of the evidence on knowledge, attitude and practice regarding dandruff; they found in their result that hair fall (75.2%) and scalp itching (72.9%) were the commonest symptoms and (63.3%) of respondents were embarrassed by dandruff.

On similarly, the American Academy of Dermatology (2008) stated that, dandruff, the mildest form, is characterized by dry, white, and scale flakes from the scalp with minimal pruritus. A moderate presentation is characterized by excessive oiliness of the skin, especially the face and scalp with distinct erythema, visible scales, and pruritus that interfere with daily activities. Improvement of the study subjects entire signs and symptoms might be due to that most of the study subjects were females and the female population is relatively more conservative in using a wide range of products on the hair and scalp. This makes it possible that treatment response may be

better in the female population or dandruff may be self-limiting with time in the females.

Concerning hair dandruff patients' level of knowledge pre/post test (Table 3), results indicates that, none of the hair dandruff patients under study answered correctly before the nursing guideline, regarding to definition, types, complications, and relation between diet and dandruff, while few of them answered correctly regarding to causes, risk factors, self care for control, prevention and protection of dandruff. Regarding symptoms of dandruff, more than three quarters of them answered correctly before nursing guidelines implementation. As a matter of fact either all or most of them answered correctly about all items in post-guideline implementation. This is consistent with Ahmed *et al.* (2007) who found in their result that 65.1% of study subjects oriented by definition of dandruff, whereas 34.9% replied negatively. So, patient education is crucial because dandruff is a controllable condition, it is imperative to inform patients that dandruff is a chronic and often relapsing disorder that requires special attention for skin care. Nurses should provide written instructions with easy-to-follow steps outlining care, and thoroughly discuss them with the patient. However the study finding disagreed with Timby and Smith (2011), who insists on a well-balanced diet, with emphasis on raw foods, especially fresh fruits and vegetables to avoid scalp dryness and flaking.

To summarize the differences in total knowledge of study patients about hair dandruff disease were highly statistically significant between pre/post nursing guidelines implementation ($X^2 = 27.0$ at p <0.001) Fig (1). The current study result is in agreement with Burke and Lemone (2008), who stated that dandruff is a common problem and there is a need for education program and formulation of a policy regarding the positive role of media on health matters.

Considering hair dandruff patients' level of practices, pre/ post tests (Table 4) results revealed that, none of patients were doing daily washing hair with warm water to avoid a layer of dead cells until dandruff disappears, in the pre-test, while after the nursing guidelines implementation, their stated practices improved to about three fifths of them, with highly statistically significant difference between pre and post the nursing guidelines implementation in all items ($X^2 = 218.3$ at p<0.001).This result is congruent with that to Nina (2013), who insisted that, clean hair invigorates follicles, reduces excessive sebum buildup on the scalp and prevents excess cells from accumulating on the scalp. Thus, it is very essential to wash hair regularly with a mild shampoo or an herbal shampoo. Massaging scalp can also help a lot in preventing, as well as in controlling dandruff as it helps to increase the blood circulation to the scalp.

After shampooing the hair, making sure to rinse hair thoroughly with water as soap residue can cause scalp irritation. To prevent oil and skin cells from building up on the scalp, it is essential to wash hair every day or every alternate day. Brushing hair when it is slightly damp and properly brushing the hair at least two times in a day are recommended to see positive result within a few days. Naidu (2010) mentioned that hair dandruff patients responded to daily washing hair.

The current study also revealed that, slightly more than one quarter avoid stress and anxiety pre implementation of nursing guidelines, more than three quarters were inadequately scalp and hair rinsing from shampoo lather and half of the study subjects avoid sleeping with wet hair and only about two fifths avoid excessive use of styling products. In addition, less than one fifth take a balanced diet, and less than one third take drinking about 8-10glasses of water for protection of scalp formation (Table 4).

The previous findings are supported by Bulletin, (2012) which stated that dandruff is seasonal, it is most severe during the winter and mildest during the summer, and the following factors may make the flaking of dandruff worse, excessive use of hair sprays and gels, improper use of hair-coloring products or excessive use of electric hair curlers, cold weather and dry indoor heating, tight fitting hats and scarves, infrequent shampooing of the hair or inadequate rinsing, in addition stress, anxiety and tension.

The findings of the present study are also consistent with the result of Ahmed *et al.* (2007), who found that, most of the individuals (93.4%) used different hair oils and household remedies for the treatment of dandruff. The regular care of the hair is washing with shampoo, twice a week. Daily massaging the scalp is also useful, as a type of positive exercise, as it stimulates the blood flow and improves the nutrition of the hair. Oil is easily absorbed in the scalp. Good scalp hygiene protects hair healthy. Dandruff can cause social or self esteem problems. Treatment may be important purely for psychological reason. Considering dandruff and diet, studies have shown that a poor diet that is too salty, sugary or spicy and accompanied by excessive alcohol and saturated fats may exacerbate dandruff. Allergies and intolerances to dairy products, seafood, high-fat foods and citrus fruits have also been associated with dandruff, as well as deficiencies in certain nutrients like B vitamins - especially B12, zinc, and omega 3. (Beck, 2013). For healthy hair and beauty, food variety may be the best option. A balanced diet of lean proteins, fruits, and vegetables, whole grains, legumes, and fatty fish (salmon) and low-fat dairy products are potential aids to hair. Crash diets with rapid weight loss can affect the normal hair cycle causing increased shedding within 6-12 weeks. This

temporary problem should recover with dietary improvements (Goldberg, 2010).

In a similar study, Rucker *et al.* (2011) reported that, a total of 98 surveys were carried out for dermatology. Essentially almost all respondents (99%) reported use of hair oils/grease. Ponytails, braids, and cornrows were worn by 81%, 67%, and 49% of girls, respectively, within the past 12 months. Certain hair careless practices were strongly associated with development of hair dandruff. The improvement of patients' practical level might have had a positive effect on hair dandruff removal, efficient care provided at home, and a well designed system of medical follow up, all of these revealed that the improvement of patients' awareness about the importance of proper home care and its principals, could be attributed to the impact of this nursing guideline implementation. These results are in agreement with Mohamed *et al.* (2013) who found in their study in relation to self-care activities that there were a highly statistically significant improvement post instructional guidelines implementation compared to pre implementation.

The current study results revealed that, three fifths and about two fifths of the study subjects avoid wearing polestar scarf and using small of a hat for long period pre implementation of nursing guidelines, which improved significantly post implementation of nursing guidelines. The results were in agreement with Rucker *et al.* (2011) who mentioned that, scarf, hats and headbands all make the scalp hot and sweaty, and are over-stimulating the sebaceous glands.

Regarding to the correlation between patients hair dandruff correct level of knowledge and their practices, (Table 5) results showed that there was a strong correlation between level of knowledge and level of practices as unsatisfactory level of knowledge was associated with inadequate practices (r=0.78). Surely, each higher level of education provides a greater degree of knowledge and skills acquired, leading to more attention paid toward control of dandruff on a patient level. Basic hair care involves a healthy lifestyle and proper care. Washing oily hair daily and avoiding over styling can lead to dryness and breakage. Protecting hair from wind, sun, and chlorine in water also will help to keep it from drying out and breaking.

Results of the current study revealed no correlation between patients' level of education and their level of knowledge (Table 6), as most of the study subjects had unsatisfactory level of knowledge before program (r=0.43). As well this study result are congruent with Smeltzer and Bare (2010), who mentioned that health education is an important aspect in patient's treatment as a result of education; patients should be aware of management choices. This will allow patients to fully participate in their treatment choices and self care. Increasing patient's knowledge of the disease would be very beneficial, according to World Health Organization (2009), which highlighted that health education influences people's opinions, attitudes and behavior.

As a result, the hypothesis of this study which stated that a nursing guidelines for hair dandruff patients will improve their knowledge, practices and symptoms, was justified as the entire symptoms improved after the nursing guidelines instructions implementation, with statistically significant improvement ($X^2 = 23.4 < 0.001$).

Conclusion:

The present study concluded that, implementation of the nursing guidelines instruction had an efficient efficacy on improving patients' hair dandruff symptoms, with highly statistically significant differences between pre/post guidelines implementation ($p<0.001$) regarding level of knowledge and practices, which lead to a well observed improvement of patients' symptoms related to hair dandruff. This is proved by the differences between pre, post, the nursing guidelines instructions implementation which showed highly statistically significant differences in all the tested items.

Recommendations:

Based on the findings of this study, the following can be recommended:

- Mass media could efficiently be utilized to offer specific educational programs to community to raise the dandruff patients' awareness about hair health issues including different approaches for proper intervention, using available community resources.

- Distributing different illustration instructional booklets and simplified brochures for the dandruff patients using simple health related information including prevention and intervention measures toward hair dandruff.

- Prevention programs focusing primarily on culturally influencing risk factors as careless hygiene, physical exercise and malnutrition in Egyptian communities are to be implemented and evaluated.

- Further researches are needed to study the different factors of the patients' burden and complaints to find out the suitable solutions for a large number of patients.

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