Quality of life assessment in patients with dandruff and scalp seborrheic dermatitis at a tertiary hospital in Indonesia

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Background: Seborrheic dermatitis (SD) is an inflammatory disease affecting seborrheic areas of the skin. Scalp SD varies from mild, manifesting as dandruff, to erythematous lesions with greasy scales. SD negatively affects patients' quality of life.

Methods: This is a cross-sectional study investigating the relationship between quality of life and disease severity in patients with dandruff and scalp SD at the Dermatology and Venereology Outpatient Clinic, of Dr. Cipto Mangunkusumo General Hospital. SD severity was assessed by the modified Seborrheic Dermatitis Area and Severity Index (SDASI), and quality of life was assessed by the Indonesian version of the Dermatology Life Quality Index (DLQI).

Results: A total of 96 subjects with scalp SD were recruited, comprising 86 subjects with mild SD and 10 subjects with moderate SD. DLQI scoring revealed 5 subjects (5%) felt no effect of SD at all on their lives, 10 subjects (10%) felt small effect, 38 subjects (40%) felt moderate effect, 32 subjects (33%) felt very large effect, and 2 subjects (2%) felt extremely large effect on their lives. There is no significant difference between SD severity with the average DLQI score in the mild SD group (8.73 ± 4.9) and the moderate SD group (9.30 ± 6.13), *P*=0.737. Furthermore, no significant difference was found between the DLQI scores in the male (9.86 ± 4.7) and female (8.18 ± 5.13) groups, *P*=0.116. Spearman's correlation analysis revealed no significant relationship between age and DLQI scores (r=-0,104, *P*=0,313).

Conclusions: Our study concludes that SD negatively affects the quality of life.

Keywords: seborrheic dermatitis, quality of life, DLQI

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INTRODUCTION

Seborrheic dermatitis (SD) is an inflammatory disease of the skin, clinically presenting as scaly erythematous lesions distributed symmetrically on areas with numerous sebaceous glands, such as the scalp, nasolabial folds, brows, eyelids, post-auricular area, sternum, and upper back [1-4]. Among the predilection areas, the most common areas are the face (87.7%), upper body (26.8%), lower extremities (2.3%), and upper extremities (1.3%) [4].

On the scalp, SD manifestations can vary from mild symptoms, presenting as pityriasis sicca (dandruff), to greasy, scaly erythematous lesions [1,5]. Dandruff is a form of mild SD [1]. SD and dandruff share the same underlying conditions, clinical manifestations, and treatments. However, dandruff is limited to pruritic scales on the scalp, while SD can be manifested in other seborrheic areas, such as the face, the post-auricular area, and chest as

scales, pruritus, and erythematous lesions [6]. In adults, SD is a chronic and relapsing disease [2].

Chronic inflammatory skin diseases can affect many aspects, which influence the patient's quality of life, including the physical, socio-economic, and psychological aspects, depending on the clinical manifestations, predilection area, and subjective symptoms, such as pruritus and scaling. A study by Parna et al. on the quality of life and emotional status of patients with chronic skin diseases including psoriasis, eczema, acne, and seborrheic dermatitis compared to healthy individuals showed that 117 out of 136 patients (86%) felt an impact on their quality of life compared to 12.5% of the healthy individuals [7]. SD can negatively affect patients' quality of life, especially in women, younger patients, and patients with higher level of education [2,4]. A study by Peyri et al. showed a relationship between SD and emotional disturbances [8].

The dermatology life quality index (DLQI) is an English questionnaire created by Finlay and Khan to assess quality of life, specifically for patients with dermatological diseases [9,10]. Our study used the Indonesian version of the DLQI, which has been found to be a valid and reliable instrument to determine the quality of life of patients with various skin diseases [11]. This study aims to investigate how SD affects patients' quality of life using the Indonesian version of the DLQI and its relation to SD severity.

MATERIALS & METHODS

Participants and study design

This is a cross-sectional study investigating the relationship between quality of life and disease severity of patients with dandruff and scalp SD at the Dermatology and Venereology Outpatient Clinic of Dr. Cipto Mangunkusumo General Hospital, Indonesia. Consecutive sampling was conducted on patients who fulfilled the inclusion criteria, which were patients with scalp SD, age between 12-70 years old, consenting to scalp examination, completing the questionnaire, and filling out the informed consent forms. The exclusion criteria were patients with scalp psoriasis, HIV/AIDS, neurological disorders (Parkinson), neurological damage due to physical trauma, emotional disturbances, familial amyloidotic polyneuropathy, and Down syndrome. Diagnosis of scalp psoriasis was established through history taking and physical examination.

Clinical assessment

SD severity score was determined using the modified Seborrheic Dermatitis Area and Severity Index (SDASI). The scalp was divided into four quadrants. The lesion area was multiplied by the erythema, scale, and papule score for each quadrant of the scalp area [5]. The severity was considered mild if the average score was 1-9, moderate if the average score is 10-26, and severe if the average score was $\geq$ 27.

The quality of life instrument used in this study was the Indonesian version of the DLQI for adult subjects and Child Dermatology Life Quality Index (CDLQI) for pediatric subjects [10,12-13]. The Indonesian version of DLQI has been tested for validity and reliability by Rahmatina, with a Cronbach's alpha value of 0.858. The DLQI consists of 10 questions related to symptoms, feeling, daily activities, free time, occupation and school, personal relationships, as well as therapy. DLQI scores were interpreted as having no effects on patient's life at all (0-1), small effect on patient's life (2-5), moderate effect on patient's life (6-10), very large effect on patient's life (11-20), and extremely large effect on patient's life (21-30) [11].

Statistical methods

Data were analyzed using SPSS version 20.0 to obtain the subjects' baseline characteristics, such as age, sex, occupation, comorbidities, and scalp SD severity score. Univariate and bivariate analysis were performed; bivariate analysis aimed to investigate the correlation between variables.

Ethical considerations

All subjects were asked to provide informed consent prior to the study.

RESULTS

A total of 96 subjects were recruited in this study (35 males and 61 females) with age between

13-70 years old (median of 30 years old). Most of the subjects (48.2%) were office workers, 12.6% of the subjects were university students, 12.6% of the subjects were stay-at-home mothers, and the rest were surveyors, drivers, security officers, and retirees. The subjects' comorbidities included prehypertension (30%), stage 1 hypertension (5%), and stage 2 hypertension (1%); while 64% of the subjects had no comorbidities. According to the modified SDASI, out of 96 subjects, almost all subjects had mild SD and no subjects had severe SD.

From the DLQI assessment, almost all subjects felt that their skin diseases affected their lives, with almost half of the subjects scored as 'moderate effect on the patient's life'. The second and third most common results were very large effect and small effect, respectively. (Table 1)

Paired T-test was performed to investigate the relationship between disease severity and DLQI score that showed no significant difference in the average DLQI scores between both groups: mild dermatitis (8.73 ± 4.9) and moderate dermatitis (9.30 ± 6.13) with *P*=0.737 (Table 2 and Figure 1). There was no significant difference of DLQI score between male (9.86 ± 4.7) and female subjects (8.18 ± 5.13) with *P*=0.116 (Figure 2). Spearman's correlation analysis was performed to investigate the relationship between age and DLQI scores that showed no significant correlation (r=-0.104, *P*=0.313). The data demonstrated that older subjects tend to have lower DLQI scores, but there was no statistically significant correlation. (Figure 3)

Table 1 Subjects distribution based on the modified SDASI score and DLQI score

Status	n	(%)
Dermatitis		
Mild SD	86	(90)
Moderate SD	10	(10)
DLQI		
No effect	5	(5)
Small effect	19	(20)
Moderate effect	38	(40)
Very large effect	32	(33)
Extremely large effect	2	(2)

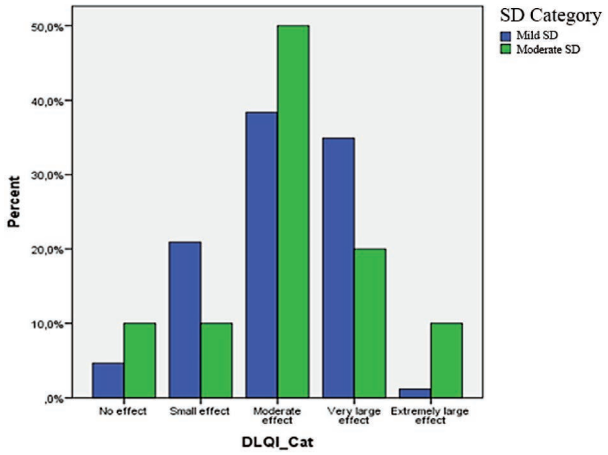

Figure 1 Distribution of DLQI scores based on SD severity.

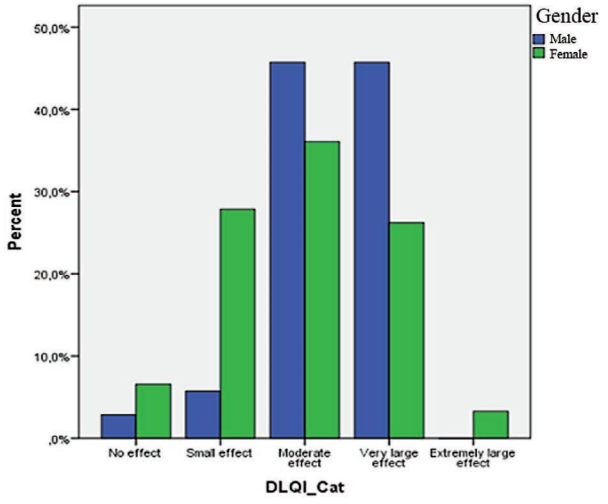

Figure 2 Distribution of DLQI scores based on gender.

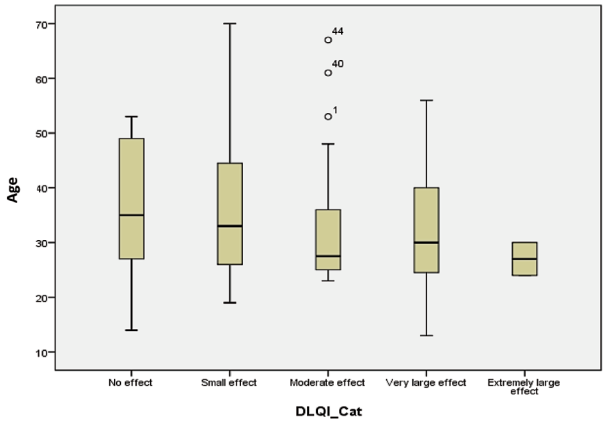

Figure 3 Distribution of DLQI scores based on age.

Table 2 Correlation between SD severity and quality of life

SD severity	No to moderate effect	Large to extremely large effect	*P*
Mild SD, n (%)	55 (64%)	31 (36%)	1.000
Moderate SD, n (%)	7 (70%)	3 (30%)	

*Fisher Exact Test

DISCUSSION

SD and dandruff are among the most common skin disorders affecting scalp that their prevalence is approximately half of adult population worldwide. SD peaks at first three months of life, in the adolescent age group, and in 40-60 years of age. It is more often in men due to the possibility of sex hormone roles in this disease [4]. This is contradicted with our study, in which the subjects were mostly females. This could happen since most males neglected their symptoms and seldom seek treatment until the symptoms get worse.

A study was conducted by Araya et al. on the clinical characteristics and quality of life of SD patients in tropical countries. One hundred sixty six patients were enrolled to the study, comprising 94 females and 72 males with mean age of 41.9 ± 18.9 years old. The results showed an average DLQI score of 8.1 ± 6.0. These were in accordance with our results, in which we found moderate effect on the patients' quality of life, with an average DLQI score of 8.73 ± 4.9 in the group with mild SD and 9.30 ± 6.13 in the group with moderate SD. The study also showed no statistically significant difference between DLQI scores and duration of disease, size of lesion, as well as symptoms. Therefore, it was concluded that mild and asymptomatic SD could create a large impact on the patients' quality of life, in line with our study. However, the study showed that younger subjects, females, and patients with scalp lesions demonstrated higher impact on their DLQI scores. Females were found to have higher scores due to embarrassment and clothing choice questions while presence of scalp lesions, manifesting as shedding scales, could be mistaken as uncleanliness. Therefore, these factors affected the patient's social-image, leading to more negative impact on the quality of life [14].

The results of our study were also in line with a study by Szepietowski et al., who studied the quality of life of 3000 patients with SD and/or dandruff in relation to age, sex, and level of education. Their subjects included patients with dandruff (30.8%), SD (30%), as well as combination of dandruff and SD (39.2%). An average DLQI scores of 6.92 ± 5.34 was obtained, interpreted as 'moderate effect on the patient's life'. When Szepietowski compared the quality of life among patients with dandruff, SD, as well as dandruff and SD, the results demonstrated that patients with dandruff had better quality of life than patients with SD with average DLQI scores of 5.34 ± 4.67 and 7.73 ± 5.3, respectively (P<0.001). Patients with dandruff were also found to have better quality of life than patients with SD and dandruff with average scores of 7.54 ± 5.6 (P<0.01). More patients with dandruff had normal quality of life (17.8%) compared to 8.7% of patients with SD and 7.6% of patients with SD with dandruff. Similar with Araya et al., this study showed that females, younger age, and high-level educated groups are more negatively affected by the disease [15].

Tejada et al. also conducted a study on the quality of life of 548 patients with various skin diseases in South Brazil. The most common characteristics of the subjects were females, married and had low level of education. It was reported that 5.3% of the patients was diagnosed with SD with a median DLQI score of 8 (moderate effect on patient's life), that is in line with our study. It was also found that female patients had higher median DLQI scores (8) compared to male patients (4) but there was no statistically significant difference, in contrast to our study which found no differences of DLQI scores between both genders [16].

Three afore-mentioned studies found that females tend to have higher DLQI scores than males, probably caused by the embarrassment and clothing choices. However, our study showed that men had higher scores than females. This could be explained by the majority characteristics of the female subjects, which were Moslem and wore hair scarves. Hair scarves cover the subjects' hair and scalp completely, hence it conceals the scales and oily scalp, which were usually assumed as uncleanliness. For the clothing choices, Moslem women should wear concealing clothes, so the SD would not interfere with their clothing choices. As for the age, our study is in line with other studies that older aged individuals tend to have lower DLQI scores despite no significant correlation because most of younger individuals had active social life. Therefore, having SD manifesting as scales, oily scalp, and hair could affect their quality of life more compared to the elderly.

This study demonstrated that SD affects quality of life negatively, but there is no significant difference regarding quality of life between groups based on different disease severity, gender, and

age. Further studies with larger sample sizes and equivalent number of subjects between groups are recommended.

Conflict of Interest: None declared.

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