# Association of psoriasis severity degree with self-esteem, depression and dermatology life quality index

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Original Article

# Association of psoriasis severity degree with self-esteem, depression and dermatology life quality index

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**Abstract**

***Background*** Psoriasis is a chronic inflammatory skin disease that affects physical health as well as self-esteem, depression, and quality of life.

***Objective*** We aimed to evaluate the association of psoriasis severity with self-esteem, depression, and dermatology life of quality index (DLQI) on outpatient and inpatient unit at Department of Dermatology and Venereology, Dr. Soetomo General Hospital, Surabaya, Indonesia.

***Materials and Methods*** This study included 37 patients that fulfilled the inclusion and denied exclusion criteria. Sociodemographic characteristics of the patients were assessed, the Psoriasis Area Severity Index (PASI) were scored to determine psoriasis severity, as well as self-esteem (Rosenberg Self-Esteem Scale), depression (Hamilton Rating Scale for Depression), and Dermatology Life Quality Index.

***Results*** Our study showed there were no subjects with high self esteem, 73% subjects had standard self esteem, 27% subjects had low self esteem, and there was a significant negative association between psoriasis severity with self-esteem (p=0,035, r=-0,215). Eighty nine point one percent of patients got depression (35.1% mild depression; 27% moderate depression; 16.2% severe depression, and 10.8% very severe depression. Positive association between psoriasis severity with depression degree, however, was not statistically significant (p=0,107, r=0,124). Ninety seven point two percent patients got impaired DLQI. Positive association between psoriasis severity with DLQI, however, was not statistically significant (p=0,315, r=0,256).

***Conclusion*** Psoriasis is associated with low self-esteem, depression, and decrease in DLQI, although not statistically significant association between psoriasis severity (PASI) with depression and DLQI. Therefore, comprehensive treatment with psychiatrist for psoriasis patients is recommended. All patients with psoriasis without regards to its severity have to be screened for self-esteem, depression, and QOL. It is necessary to assess patients with low psoriasis severity to psychiatrist.

***Key words***
Psoriasis Vulgaris, PASI Score, Self Esteem, Depression, DLQI, Dermatology Life Quality.

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## Introduction

Psoriasis is a chronic inflammatory auto-immune skin disease marked by skin thickening with erythematous plaque and papules, well defined with multilayered rough squama and

may be accompanied with pustular eruption and erythrodermic or Auspitz and Koebner phenomenon. Psoriasis Vulgaris is the most prevalent type found in 90% of all psoriasis patients. Psoriasis severity is frequently evaluated with Psoriasis Area and Severity Index (PASI), which is often used in clinical trials for its practical and fast uses but with high variability.[1]

Psoriasis can affect all age groups, mostly at age of 15-30 years then there is no prevalence difference between men and women. In Indonesia, based on data from Dr. Mohammad Hoesin General Hospital Palembang from August 2008 to June 2012, psoriasis incidence was 1.35% in 491 cases, whereas in RSUP Prof. Dr. D. Kandou Manado from January 2013 to December 2015 188 new cases of psoriasis (5.26%) was found from 3573 new visits of skin diseases. WHO also declared that psoriasis is a global issue that affects at least 100 million people all over the world, not only physically, but also mentally.[2-4]

Psoriasis can be triggered by environmental factors such as stress, infection, or treatment. Psorasis is not life threatening, but for this disease to affects patient's appearance and often persists for a lifetime; particularly in face, hands, legs, or genitals; can disturbs social and emotional aspects of the patients. Nervousness, anger, shame, lower self-esteem or confidence can lead to isolation and low productivity, to depression and decreases daily quality of life (QOL).[5-7]This study aimed to evaluate severity of psoriasis and its association with self esteem, depression and DLQI to increase the quality of psoriasis management.

## Materials and Methods

We used an analytic cross-sectional observational study to evaluate the association of psoriasis vulgaris severity using PASI with self-esteem (using Rosenberg Self Esteem Scale), depression (using Hamilton Rating Scale for Depression), and QOL (using Dermatology Life Quality Index). The study population consisted of 37 psoriasis patients acquired by consecutive sampling, on outpatient and inpatients at Dermatology and Venereology Department in Dr. Soetomo General Hospital Surabaya during 2018, which fulfilled the inclusion and denied exclusion criteria. The inclusion criteria were clinically and histopathologically diagnosed psoriasis, age >18 years old, and willing to participate in the study after informed consent. The exclusion criteria were pregnancy and other diseases that were not correlated with psoriasis. Data was evaluated with bivariate analysis using Chi Square and correlation test to measure the correlation between variables. Ethical clearance for the study was given by the Research Ethics Committee of Dr. Soetomo General Hospital, Surabaya, Indonesia.

## Results

There were 37 psoriasis patients in outpatients and inpatient at Dermatology and Venereology Department in Dr. Soetomo General Hospital Surabaya during 2018, they were aged between 17-25 years old to above 65 years old with mean age 44.3±14.12 years, grouped based on Depkes 2009. Table 1 presents the patients' baseline characteristics. Most patients were aged between 46-55 years old (13 patients, 35.1%) and only one patient was above 65 years. Thirty six patients were outpatient and 1 was inpatient, 19 were male (51.4%) and 18 were female (48.6%). Most patients had education level of high school (23 patients, 62.2%). Based on the distribution of occupation, most of the patients worked in private sector (18 patients, 48.6%), others were private employee, students, etc. Most of the patients were married (25 patients, 67.6%), 9

were not married (24.3%) and 3 patients were widow/widower (8.1%) **(Table 1)**.

Subjects were classified based on duration of the disease, 12 patients with disease duration <5 years (32.4%), 12 patients with disease duration between 5-10 years (32.4%), and 13 patients with disease duration of more than 10 years (35.2%). Comorbidities were also identified, 8 patients (21.6%) had hypertension, 1 patient (2.7%) had history of stroke, 9 patients (24.3%) had hypercholesterolemia, 6 patients (16.2%) had type 2 diabetes mellitus, 9 patients (24.3%) had hyperuricemia, 5 patients (13.5%) were smokers, 2 patients (5.4%) had alcohol consumption habit, 2 patients (5.4%) had used narcotics, and 8 patients (21.6%) had history of psoriasis vulgaris in family **(Table 1)**.

Based on gender, male psoriasis patients were 19 patients (51.3%) with 17 patients (54.8%) having moderate-severe psoriasis (PASI score >10), although not statistically significant (p=0.405). Most patients were aged between 46-55 years old (13 patients, 35.1%) with 12 patients (38.7%) having moderate-severe psoriasis (PASI >10) and 1 patients (16.7%) with mild psoriasis. Early elderly patients (aged 46-55 years old) and late teenage (17-25 years old) had most number of low self-esteem, with 4 patients (10.8%) each. Early elderly patients were the age group with the most very severe depression (3 patients, 8.1%) and severe depression (2 patients, 5.4%). Late teenage group had 1 patient (2.7%) with very severe depression. Most psoriasis patients (48.64%) had psoriasis with very big effect (DLQI 11-20) on QOL, with 2 patients (5.4%) were early elderly age group and 2 patients (5.4%) elderly age group.

Most patients (23 patients, 62.2%) were educated till high school, with 19 patients (61.3)

**Table 1** Patient's Baseline Characteristics

| *Variables* | | *n, %* |
|---|---|---|
| Outpatient | | 36 (97.29%) |
| 13tient | | 1 (2.71%) |
| Gender | Male | 19 (51.4%) |
| | Female | 18 (48.6%) |
| Age | 17-25 years | 7 (18.9%) |
| | 26-35 years | 3 (8.1%) |
| | 36-45 years | 5 (13.5%) |
| | 46-55 years | 13 (35.1%) |
| | 56-65 years | 8 (21.6%) |
| | >65 years | 1 (2.8%) |
| Education | None | 1 (2.7%) |
| | Elementary School | 7 (18.9%) |
| | Middle School | 2 (5.4%) |
| | High School | 23 (62.2%) |
| | Bachelor | 4 (10.8%) |
| Occupation | Private Sector | 18 (48.6%) |
| | Entrepreneur | 6 (16.2%) |
| | Student | 2 (5.4%) |
| | Not working | 2 (5.4%) |
| | Housewives | 9 (24.3%) |
| Marital status | Married | 25 (67.6%) |
| | Not Married | 9 (24.3%) |
| | Widow/Widower | 3 (8.1%) |
| Visits | New Patient | 6 (16.2%) |
| | Late Patient | 31 (83.8%) |
| Disease duration | < 5 years | 12 (32.4%) |
| | 5-10 years | 12 (32.4%) |
| | >10 years | 13 (35.1%) |
| Comorbidities | Hypetension | 8 (21.6%) |
| | History of Stroke | 11.7%) |
| | Hypercholesterolemia | 9 (24.3%) |
| | Type 2 Diabetes Mellitus | 6 (16.2%) |
| | Hyperuricemia | 9 (24.3%) |
| | Smoking habit | 5 (13.5%) |
| | Alcohol consumption habit | 2 (5.4%) |
| | Used Narcotics | 2 (5.4%) |
| | History of psoriasis vulgaris in family | 8 (21.6%) |

having moderate-severe psoriasis. Patients with high school education had low self-esteem (6 patients, 16.2%). Very severe depression was found on patients with high school (2 patients, 5.4%) and middle school (2 patients, 5.4%) education level. Middle school and high school education level had 2 patients (5.4%) each with extremely effected QOL. Most patients were private employees (18 patient, 48.6%) with severe psoriasis in 15 patients. Most of patients with disease duration of >10 years had severe psoriasis (12 patients, 92.3%). No psoriasis patients had high self esteem level. Low self-esteem was found in patients with disease duration of 5-10 years (6 patients, 46.2%). There were only 4 patients (10.8%) with no depression

**Table 2** Patient's characteristics on psoriasis severity, self esteem, depression and quality of life

| *Patient's characteristics* | *ess and Psoriasis* | *P value* |
|---|---|---|
| Gender | Psoriasis Area Severity Index | 0.405 |
| Age | Psoriasis Area Severity Index Rosenberg | 0.317 |
| | Self Esteem Scale | 0.234 |
| | Hamilton Rating Scale for Depression | 0.763 |
| | Dermatology Life Quality Index | 0.450 |
| Education level | Psoriasis Area Severity Index Rosenberg | 0.932 |
| | Self Esteem Scale | 0.213 |
| | milton Rating Scale for Depression | 0.698 |
| | Dermatology Life Quality Index | 0.033 |
| Occupation | Psoriasis Area Severity Index | 0.423 |
| Disease duration | Psoriasis Area Severity Index Rosenberg | 0.012 |
| | Self Esteem Scale | 0.156 |
| | Hamilton Rating Scale for Depression | 0.146 |
| | Dermatology Life Quality Index | 0.545 |

identified, with very severe depression found in 4 patients (10.8%).

Most patient with disease duration of >10 years had mild depression (66.8%), while severe depression and very severe depression were found more on disease duration of 5-10 years. There were 5 patients with extremely affected QOL, three of them (8.1%) had disease of 5-10 years, while most patients (7 patients, 18.9%) with duration <5 years and greatly affected QOL. There were 23 psoriasis patients with comorbidities (62.2%), 19 of them had moderate-severe psoriasis (61.3%)

In general, there were 31 patients with moderate-severe psoriasis (83.8%) with normality of psoriasis severity data. No patients had high self-esteem. There were 10 patients with low self-esteem (27%). There were 4 patients with very severe depression (10.8%), with normality of depression data were p=0.896 (normally distributed). There were 6 patients with extremely affected QOL (16.2%) with normality of QOL were p=0.497 (normally distributed).

**Table 2** describes patient's baseline characteristics in association with psoriasis severity, self-esteem, depression and quality of life. No statistically significant differences were determined between the groups. Significant statistic difference were found in education level on DLQI (p=0.033), disease duration on psoriasis severity (p=0.012) **(Table 2)**.

**Tabl** describes psoriasis severity associated with self-esteem, depression, and quality of life. All patients with low self-esteem were found on moderate-severe psoriasis (10 patients, 27%). There were lower self-esteem level found on moderate-severe psoriasis group (16.06±3.47) compared with mild psoriasis (19.33±2.42). There is a significant statistic association between psoriasis severity with self-esteem (p=0.035). The mean of severe depression were found more on moderate-severe psoriasis (15.16±6.87) compared with mild psoriasis (10.33±4.13). Severe depression (6 patients, 19.4%) and very severe depression (4 patients, 12.9%) were found only in moderate-severe psoriasis. There is no significant statistic association between psoriasis severity with depression (p=0.107). The mean of DLQI in mild psoriasis (11.17±5.88) were lower compared with severe psoriasis (14.32±7.11). High DLQI scores were found in moderate-severe psoriasis patients. There is no significant statistic association between psoriasis severity with DLQI (p=0.315) **(Table 3)**.

**Table 3** Psoriasis Severity associated with Self-esteem, Depression, and Quality of Life

| *Variables* | *PASI ≤ 10, n (%)* | *PASI > 10, n (%)* | *P* |
|---|---|---|---|
| Rosenberg Self Esteem Scale | | | 0.035 |
| Low self-esteem (<15) | - | 10 (32.26%) | |
| Moderate self-esteem (15-25) | 6 (100%) | 21 (67.74%) | |
| High self-esteem (>25) | - | - | |
| Mean *Rosenberg Self Esteem Scale* | 19.33±2.42 | 16.06±3.47 | |
| Hamilton Rating Scale for Depression | | | 0.107 |
| Normal (≤7) | 1 (16.7%) | 3 (9.68%) | |
| Mild depression (8-13) | 3 (50%) | 10 (32.26%) | |
| Moderate depression (14-18) | 2 (33.3%) | 8 (25.81%) | |
| Severe depression (19-22) | - | 6 (19.4%) | |
| Very Severe depression (≥23) | - | 4 (12.9%) | |
| Mean *HRSD* | 10.33±4.13 | 15.16±6.87 | |
| Dermatology Life Quality Index | | | 0.315 |
| No effect (0-1) | - | 1 (3.23%) | |
| Mild effect (2-5) | 1 (16.67%) | 3 (9.68%) | |
| Moderate effect (6-10) | 2 (33.33%) | 7 (22.58%) | |
| Very large effect (11-20) | 3 (50%) | 15 (48.39%) | |
| Extreme large effect (21-30) | - | 5 (16.13%) | |
| Mean *DLQI* | 11.17±5.88 | 14.32±7.11 | |

**Table 4** Correlation of psoriasis severity with self-esteem, depression, and quality of life

| | | *Psoriasis Area Severity Index* | *Rosenberg Self Esteem Scale* | *Hamilton Rating Scale for Depression* | *Dermatology Life Quality Index* |
|---|---|---|---|---|---|
| Psoriasis Area Severity Index | Pearson Correlation | 1 | -0.215 | 0.124 | 0.256 |
| | Sig. (2-tailed) | | 0.202 | 0.466 | 0.126 |

**Table 4** describes the correlation between psoriasis severity with self esteem, depression, and quality of life. There is a weak negative correlation between PASI score with Rosenberg Self Esteem Score (p= 0.202, r=-0.215), weak positive correlation between PASI score with Hamilton Rating Scale for Depression (HRSD) (p=0.466, r=0.124) and PASI score with Dermatology Quality Life Index (DLQI) (p=0,126, r=0.256). Significant statistic correlation were found between Rosenberg Self Esteem Score with HRSD (p<0.001) and Rosenberg Self Esteem Score with DLQI (p=0.030) **(Table 4)**.

## Discussion

This study is consistent with Boehncke *et al*[8] that stated psoriasis prevalence between men and women were similar, also psoriasis in men were more severe than women, this study did not explain why.[9] Various studies stated that psoriasis prevalence in men and women were similar, a few states that men were more prevalent as in a retrospective epidemiological study in Polyclinic of Dermatology and Venereology RSUP Dr. Mohammad Hoesin Palembang from August 2008 to June 2012 (312 patients, 74%) and study in RSUP Prof. Dr. R. D. Kandou Manado about psoriasis profile from January 2013 to December 2015 (57.98%).[2-4] Konajova (2017) in their research on 1412 psoriasis patients in Central and East Europe showed predomination of men about 63.4% that suggest there was different disease activity on different gender, that men were more prone to more severe psoriasis.[10]

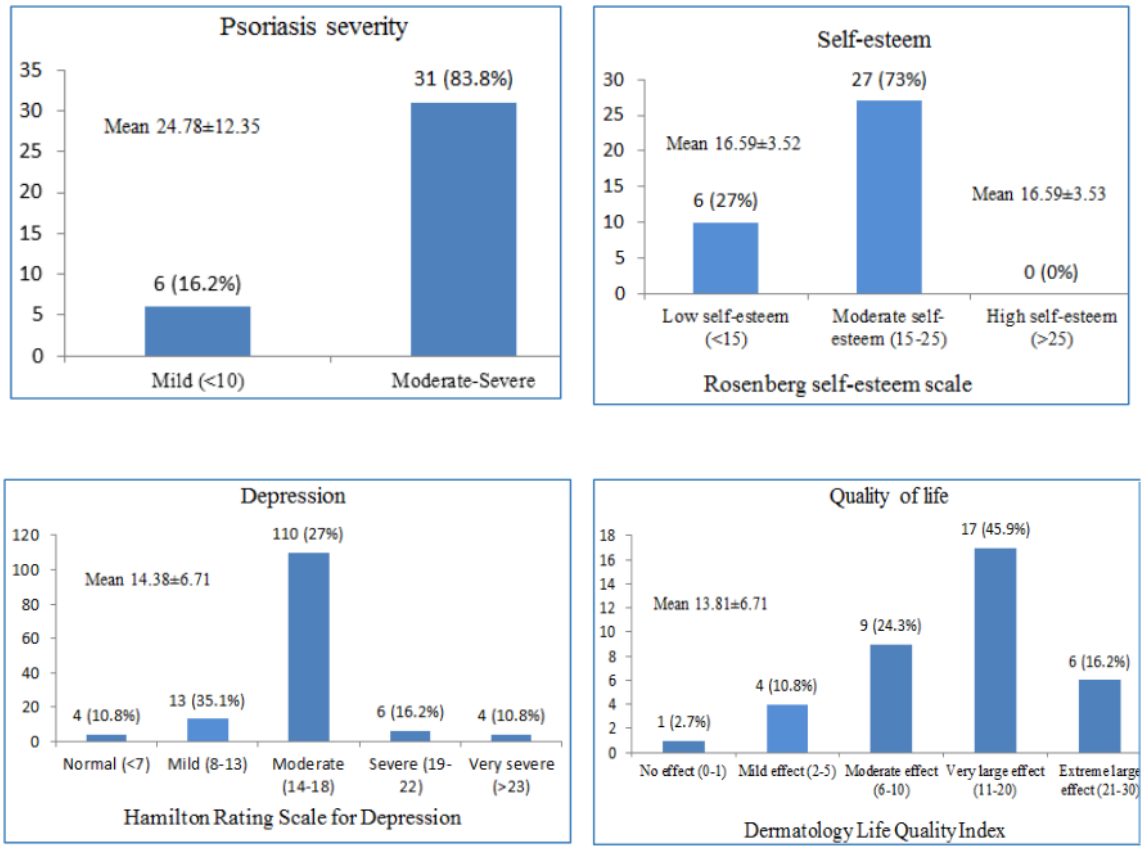


**Figure 1** Psoriasis Severity, Self-esteem, Depression, Quality of Life

Most age group that suffered from psoriasis was early elderly patients, which were consistent with a study in RSUP Prof. Dr. R. D. Kandou Manado about psoriasis profile from January 2013 to December 2015 (50.53%).[4]This difference occurs for there is difference in geographical areas. Psoriasis is more prevalent in area away from the Equator such as countries in Europe and Australia, and more seldom found in Asian countries.[11] Psoriasis incidence in Asia is the lowest (0.4%), while in other continents were higher with 2.2%-5.2% in Europe and 2.3%-6.6% in Australia.[1,11]

Psoriasis can emerge in any age group, with more prevalence in third decade and before 40 years old in 70% patients.[12] Stigma on psoriasis were found more in lower age group.[13] Patient with psoriasis had 16 times more chance to have dysfunction in family, which is important to identify its risk and psychological factors that can affects family relationship.[14,15]

Psoriasis symptoms such as pain, burning sensation, itch, bleeding, exudation, weakness and difficulty falling asleep were more likely found in lower education level based on Sampogna (2009), which contradicted with the present study although not statistically significant, but patients with lower educational level were less likely to use mental health facility.[16]

Association of occupation and socioeconomic

status with psoriasis did not have a clear explanation. Higher stress level on private sectors and psoriasis conditions that affects working difficulties can influence one's productivity which may have impact on patients socioeconomic condition, although the specific factors affecting this condition needs further evaluation.[15]

Higher self-esteem score were found more on higher educational level, although not significant to DLQI. Study from Ustundag *et al*[17] stated that higher educational level shows higher self esteem, while Kim *et al*[18] stated there were no association between education level and DLQI. In general, higher educational level gives certain protective factors against depression.[19]

Our study showed there were no patients with mild psoriasis that had that had the disease for more than 10 years. This was consistent with Song *et al* that stated the more early patient had psoriasis and the longer one's suffer, the more severe its condition.[20] Pakran *et al* showed longer disease duration could reduce DLQI more as it affected certain physical disability.[21] Lee, *et al* (2010) also stated that disease duration is a predictor of lower DLQI.[22] Disease duration on DLQI showed insignificant statistic association, found also in Gelfand *et al*[23] that explained patients were not always adapting with the disease as time goes by. But a study from Monali *et al* explained that the chronic and recurrent characteristic of the disease often lowers patients hope of curing and had constant uneasiness about their treatment plan that may emerge new lesions, which were aggravated by the nature of the disease that were difficult to control.[24]

Increasing comorbidities in psoriasis were suggested to be caused by systemic inflammation of psoriasis that influence different inflammation activity that lead to insulin resistance, atherosclerosis that often happened in psoriasis patients[10], although not statistically significant in our study. There were various studies that explained higher prevalence and severity of comorbidities in psoriasis patients.[15,20,25-40]

Our present study (p=0.035) was consistent with Sivanesan *et al*[41] that stated 60% psoriasis patients had lower self-esteem level. Aydin *et al* stated lower self-esteem on psoriasis patients for its causes negative impact on social and physical appearance, which may be explained in recurrent cases, repeated treatment, cosmetics problems, difficulty sleeping, also other symptoms such as pain, itch, and no improvement in performed treatment.[7] Chronic psoriasis patients may actively constructs their own disease model in order to subdue the diseases symptoms. Higher severity psoriasis patients had more understanding and faith about their chronicity of the disease, may be an indicator for coping mechanism, and had lower complaints compared with new psoriasis patients.[42]

Psoriasis severity may be associated to depression level, although not statistically significant in our study, which may be explained by social and cultural factors of Indonesian people that expresses sickness often as physically ill, rarely psychologically ill. We also classified mild psoriasis as PASI score < 10 and moderate-severe as PASI score > 10, while there was difference in study such as from Sivanesan et al that used PASI score <3,3-5, and >5.[41]Sivanesan et al showed that higher severity psoriasis could lead to higher depression level and suicide ideas.[41,43,44] there were also many factors that influence depression on psoriasis patients such as comorbidities, symptoms, environmental factors and stigmatization.[45] South East Asia also had lower knowledge on depression.[46]

Our study found higher DLQI score on moderate-severe psoriasis compared with mild psoriasis, although not statistically significant, showed that psoriasis severity can affects patient's DLQI, but may be influenced by other factors that may also influence DLQI on psoriasis patients. Khawaja et al showed weak correlation between PASI dan DLQI (r=0.345, p<0.01).[47,48] Psoriasis appearance on visible skin could affect DLQI.[49,50] Duration of the disease, recurrency, repeated treatment, can make psoriasis patients developed hopelessness on their illness.[51]

We found weak correlation between PASI score and Rosenberg Self Esteem Scale, HRSD, and DLQI, nevertheless there is no significant association. Nazik et al study showed otherwise, but they did not evaluate other factors such as disease duration and socioeconomic status that could be a confounding factor.[52]Sivanesan et al found psoriasis patients had significantly lower self esteem, significantly higher depression level, and significantly more extemely affected DLQI compared to normal patients.[41] Consistent results found in study from Owczarek et al, that explained that DLQI scoring is subjective and can be different from one to another patient. Even so, there were a different DLQI score, using WHODLQI-BREF, in evaluating psoriasis patients' DLQI.[53]

Factors affecting self esteem, depression level, and QOL in psoriasis patients had also been evaluated by previous studies. Lakuta et al on regression analysis showed that female, shorter disease duration, low social support, and high stigma on environment were significant predictors to depression symptoms. The study also states that psoriasis severity did not had significant influence to depression symptoms.[47] Systematic review from Mattei et al states that there were stigma and psychological burden that affects signs of uneasiness dan depression in 30% psoriasis patients without regard to its severity. There may be other factors such as recurrency, location of the lesion, cosmetics, and other symptoms of psoriasis.[54] Genetics and coping mechanism can affects mental health, stigmatization were also an important factor.[55] In our study, most moderate-severe psoriasis were early elderly age group, which were not a productive age group that did not had many interactions with their working or social environment. On study from Judith et al, psoriasis patients shows low positive intrinsic affect, and high score for impulsive behaviour. Faced with a stressful situation, patients with psoriasis shows deficit in controlling the situation and more likely to avoid negative outcome for they tend to be passive in action.[56] To this present moment, there were no literature found that explains certain personality type that affects self-esteem, depression and DLQI in psoriasis patients.

With the effect of psoriasis on mental health, psychotherapy and psychological intervantion were considered effective in managing stress that occurs in psoriasis patients, with the most often method used were stress reduction, meditation and cognitive behaviour therapy (CBT). A study from Fortune et al shows significant PASI score reduction after 6 weeks and 6 months with CBT as supportive therapy, as well as lower depression score and significant elevation of QOL.[14,55,57,58]

## Conclusion

Psoriasis is associated with low self-esteem, depression, and lower DLQI. Psoriasis severity is associated with self-esteem. Although not statistically significant association between psoriasis severity with depression and DLQI our study; but majority of patiens got depression and their disease affect their DLQI. Therefore, it is recommended that psoriasis patients should

undergo comprehensive treatment with psychiatrist. On all psoriasis patients, without regards to its severity, there is a need of screening for self-esteem, depression, and DLQI. We also suggest that psoriasis patients have to be accompanied by a psychiatrist even on mild psoriasis severity.

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