Comparison Quality of Life between Type of Melasma Outpatient of Dermatovenerology Clinic

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Abstract

The impact of melasma was not only about health problems, however, it also about the social impact that becomes a new problem in the management of melasma. This study was aimed to investigate Quality of Life in some type of melasma. This study was a cross-sectional study on 82 patients diagnosed with melasma in the dermatovenerology clinic in two samples of Private hospital from January-April 2019 that was taken by accidental sampling method. All data of this study were analyzed by descriptive analysis, then the quality of life and clinical presentation were analyzed by logarithmic transformations on Melas-QoL and T-independent Test. There are more participants had malar melasma (76.83%) than the centrofacial melasma (23.17%). T-Independent Tests showed that there was no difference in the quality of life among each type of melasma (P-value <0.05). However, there is a significant difference between the perceptions among each type of melasma (P-value = 0.026), where there are more participants who feel disturbed by the centrofacial melasma (84.2%) than malar melasma (58.7%). There is no difference in the quality of life among each type of melasma. However, patients with centrofacial melasma are more disturbed on their skin than malar types.

Keywords: entrofacial; Malar; Melas-QoL; Quality of Life.

1. Introduction

There are two types of pigmentation disorder include hypermelanosis and hypomelanosis. Melasma is one of pigmentation disorder which unknown etiology and pathogenesis. Melasma is acquired hypermelanosis which has the rash-like symmetric or confluence or separated light to dark brown along exposed skin against UV [1–4]. In the past, melasma also known as chloasma, the mask of pregnancy, liver spots, chloasma gravidarum, and chloasma virgium [1,3,5,7]. Chloasma comes from the Greek, chloazein, which means "become green" [8].

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Melas, also from Greek, means "black". Because pigmentation never appears green, melasma has a more appropriate term [3,5,6]. There some type of melasma based on its domination in the face includes centrofacial, malar, and mandibula. Based on the type of melasma, the most common melasma was centrofacial 50-80% included the forehead, nose, upper lips, without philtrum, cheek, and chin. Malar limited in malar cheek in the face while mandibular was the line in jaw and chin. Mandibula might be found in older persons and associated with severe photodamage [9]. The incidence of Melasma was high. In Nepal, the incidence of melasma was high in 2008 amount of 546 patient of dermatologists was diagnosed melasma [10]. On the other hand, in Indonesia there was not a general study about melasma but, the separated study had been conducted. Based on the Dermatology and Venerology Department of RS. Dr. M. Djamil Padang, there were 9.5% from 1.622 consultations for 2011-2014 which were diagnosed Melasma [11]. While according to a study in RSU H. Adam Malik Medan, the most common pigmentation disorder was melasma, followed by Post-Inflammatory Hyperpigmentation [4]. Melasma does not only affect a healthy profile but it also affects Quality of Life especially social aspect which became a new challenge in the treatment of melasma. The reducing Quality of Life in Melasma patient was shown in the study by Ikino and his colleagues (2015) in Universidade Federal de Santa Catarina Hospital reported there are significant emotional impact in Quality of Life from Melasma Patient [12] while Tursina and his colleagues (2017) in one of private dermatologist clinic report similar result whether there was correlation between severity of melasma and quality of life [13]. Based on the information above, Quality of Life in Melasma patient was an important aspect of the treatment of Melasma patient. However, the severity of melasma was difficult to realize in the clinical setting. So, this study was aimed to investigate Quality of Life in some type of melasma using the simple classification from the type of melasma.

2. Methods

This study was a cross-sectional study among adult woman which was outpatient of dermatovenerology clinic in two samples of Private hospital from January-April 2019. From each hospital, the samples were gotten by the Accidental sampling technique. Information collected socio-demographic characteristics, Quality of Life, and Type of Melasma. There were 82 participants as samples. All of the participants were diagnosed by clinical presentation that was fulfill inclusion criteria includes woman and aged older than 18 years old. The clinical presentation includes light or dark brown macules with firm borders with irregular edges in areas that are often exposed to ultraviolet rays, grayish or bluish tones especially in the dermal type [3,5,7,8]. Socio-demographic characteristics of participants included age, last education, and occupation. The age was classified into 21-30 years old, 31-40 years old, 41-50 years old, 51-60 years old, and 61-70 years old. The last education was classified into primary school, junior high school, senior high school, diploma 3, bachelor's degree, and master. While the occupation was classified as civil servant, housewife, private employees, and others. Quality of Life was derived by Melas-QoL Quesionner. It had 10 questions, each question had 7 options which were ranged from 1 (Not bothered) to 7 (bothered to all the time). The highest score which could be gotten by this questioner was 70 and the lowest was 10. Type of Melasma was classified into centrofacial, mandibular, and malar type based on the clinical presentation. Centrofacial included the forehead, nose, medial cheek, lower nose, and chin while malar included nose and lateral cheek, and Mandibular only distributed in mandibular. Total Melas-QoL score in this study was express in Mean ± SD. The comparison of Total Melas-QoL Score from each type of melasma was analyzed by Independent T-Test. If the normality of Total Melas-QoL didn't distribute normally, it

was transformed by logarithmic transformation. Each answer from each question was analyzed by Mann-Whitney Test. All test had confidence interval at 95% (α = 0.05)

3. Results and Discussion

3.1. Prevalence of Melasma

The prevalence of the type of melasma in two private hospitals in this study was shown in the table below.

Table 1: Prevalence of Each Type of Melasma

Type of Melasma	Frequency	Percentage
Centrofacial	19	23.17
Malar	63	76.83
Total	**82**	**100.00**

Based on table above, the prevalence of malar melasma (76.83%) was higher than centrofacial (76.83%). There are 19 participants which had centrofacial type from 82 participants while remain 63 participants had malar type of melasma. Melasma is an abnormality in the skin that experiences hyperpermelanosis (melanoderma) which is an increase in the production of melanin pigment in the skin and melanocyte cells increment, generally symmetrical, confluence or scattered, in the form of light brown to dark brown macules, on areas exposed to ultraviolet light with predilection on cheeks , forehead, upper lip, nose and chin area [1,3,5–7]. The exact cause of melasma is still unknown and the pathogenesis is unclear [1,3,5–8]. However, there are several risk factors that take a role in pathogenesis of melasma includes genetic, UV radiation, hormonal, drugs, race, cosmetic [6,7], inflammation, stem cell factor, neural, vascular components [8], pregnancy, oral contraception, estrogen replacement therapy, ovarian dysfunction, ovarian tumor, nutrition, thyroid dysfunction, phototoxic drugs, epilepsy [1,3,6], and steroid [3]. These risk factors affect the melanogenesis process [3,5–8]. Melasma is most common in women (90%) than in men (10%) [6]. The sex ratio of melasma in Indonesia is 24:1, especially seen in women of childbearing age with a direct history of long-term intensity sun exposure, at the age of 30-44 years is the highest incidence, this disorder can affect pregnant women, women using oral contraceptives, cosmetic users, drug users, and others [1,3,5–7,14]. There are several types of melasma based on clinical presentations, histopathologic view, and wood light examination [7]. Based on the clinical presentation, melasma is classified into centrofacial (63%),malar (21%), and mandibular (16%) [1,5,7,1,5,7]. On the other hand, based on the histopathologic view, it is classified into epidermal, dermal, and mix type. While based on the wood examination, it was classified the same as a histopathologic view but there is unclear type as an additional that is unclear lesion efflorescent when it is lighted using wood lamp [5–7].

3.2. Social-Demographic Characteristics

The socio demographic characteristic of participants in this study was shown in table below.

Table 2: Socio-Demographic Characteristics of Participants

Characteristics	Type of Melasma		Total
	Centrofacial (n=19)	Malar (n=63)	
Age			
21-30	5 (26.3)	12 (19)	17
31-40	5 (26.3)	15 (23.8)	20
41-50	8 (42.1)	23 (36.5)	31
51-60	1 (5.3)	11 (17.5)	12
61-70	0 (0)	2 (3.2)	2
Last Education			
Primary School	2 (10.5)	5 (7.9)	7
Junior High School	0 (0)	3 (4.8)	3
Senior High School	8 (42.1)	17 (27.0)	25
Diploma 3 (Associated degree)	4 (21.1)	17 (27.0)	21
Bachlor's degree	5 (26.3)	15 (23.8)	20
Master	0 (0)	6 (9.5)	6
Occupation			
Civil Servant	1 (5.3)	14 (22.2)	15
Housewife	4 (21.1)	18 (28.6)	22
Private employees	5 (26.3)	27 (42.9)	32
Others	9 (47.4)	4 (6.3)	13

Based on the table above, the peak age of centrofacial or malar melasma was between 41-50 years old. While last education level of participant among centrofacial type was the most common in senior high school (42.1%) and Senior High School - Diploma 3 (Associated degree) was the most common last education in malar type which amount of 17 participants in each level of education (27%). Furthermore, the most occupation in centrofacial type did not describe in this study amount of 9 participants (47.7%) but, in malar type, the most common occupation of participants in this study was private employees which were 27 participants (42.9%).

3.3. Comparison of Total Melas-QoL Score

Belong to the previous decade, evaluations of medical therapy procedures only based on the objective clinical recovery criteria. However, in the recent decade, reported subjective factors such as patient experience, habits, and disease severity have made it possible to clinically determine the characteristics of the disease course and the effects of therapy. These factors are categorized as Quality of Life (QoL). Quality of Life (QoL) related to the Health (Health-Related Quality of Life (HR-QoL)) is part of Patient-reported outcomes (PROs) that have substantive importance in research as well as medical care. HRQoL reflects the patient's health condition in physical, social, emotional and functional dimensions [15]. The evaluation for the *Health-Related Quality of Life* (HRQoL), there are two types of psychometric questionnaires namely generic (general) and specific. General instruments are multidimensional and are developed to evaluate the impact caused by a disease in

various aspects of life as a whole. The disadvantage of using such instruments is that they are not sensitive in detecting specific aspects of the suction quality in patients who have certain diseases. Specific instruments can also be multidimensional and can assess certain aspects of the quality of life of certain individuals, with emphasis on symptoms, disability, or limitations related to certain diseases. The disadvantage of this instrument is the difficulty of understanding the phenomenon generally [16]. The Melasma Quality of Life (Melas-QoL) scale is a useful tool in assessing the quality of life for patients that have melasma. Initially, the instrument was developed in English, recently the questionnaire was translated into various languages including Spanish, Portuguese, Brazilian, French, and Turkish. When these instruments are translated into other languages, attention must be focused on cross-cultural adaptation and appropriate methods of translation and validation to create accurately translated instruments [17]. Total Melas-QoL score which was collected from each type of melasma was analyzed by descriptive statistic and normality test. The figure above was shown the comparison of the total Melas-QoL score in each type of melasma. Due to the total Melas-QoL Score did not distribute normally, Total Melas-QoL Score was transformed logarithmically.
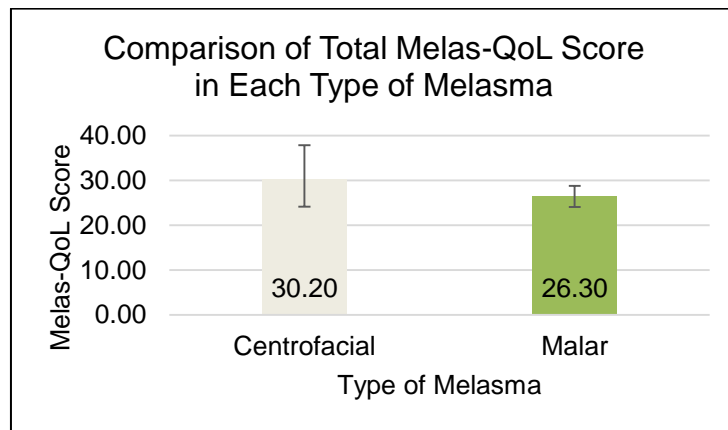

Figure 1: Comparison of Total Melas-QoL Score in Each Type of Melasma

Based on the figure above, the average from the Total Melas-QoL score was higher than on the malar type. However, the dispcersion of the data from centrofacial was wider than in the malar type. The dispersion which was used in this study were Standard deviation. Furthermore, the transformation of the total Melas-QoL score was analyzed by Independent T-Test. The result of the Independent T-Test was shown in the table below.

Table 3: Analysis of Independent T-Test for Total Melas-QoL Score in Each Type of Melasma

| Type of Melasma | Log (Total Melas-QoL Score) | $\bar{X}$ *Standar Error of Mean* (SEM) | 95% CI of Mean | | P Value |
			Upper Limit	Lower Limit	
Centrolfasial	1.48	0.05	37,84	24,10	0.251
Malar	1.42	0.02	28,79	24,03	

Based on the figure above, the average from the Total Melas-QoL score was higher than on the malar type. However, the dispcersion of the data from centrofacial was wider than in the malar type. The dispersion which was used in this study were Standard deviation. Furthermore, the transformation of the total Melas-QoL score

was analyzed by Independent T-Test. The result of the Independent T-Test was shown in the table below. Overall Quality of Life from each type of melasma was not different. Whereas each item from the questioner was also analyzed by the Mann-Whitney test and it was shown in the table below.

Table 4: Analysis of Mann-Whitney Test for Each Item of Melas-QoL in Each Type of Melasma

Question	Item	P value
Q1	The appearance of your skin condition	0.026
Q2	Frustration about your skin condition	0.325
Q3	Embarrassment about your skin condition	0.492
Q4	Feeling depressed about your skin condition	0.646
Q5	The effects of your skin condition on your interaction with other people	0.677
Q6	The effects of your skin condition on your desire to be with people	0.569
Q7	Your skin condition making it hard to show affection	0.678
Q8	Skin discoloration making you feel unattractive to others	0.139
Q9	Skin discoloration making you feel less vital or productive	0.060
Q10	Skin discoloration making you sense of freedom	0.695

Based on the table above, there was only a question which had a significant difference among the type of melasma. It was the first question about the appearance of their skin appearance which had p-value 0.026 (P-value < 0.05). Other questions from the Melas-QoL Quesionner did not have differences among the type of melasma due to p-value > 0.05. In the purpose of investigating the differences which were gotten from the Mann-Whitney test. The following tables will show the distribution of answers from each item of the questioner for each type of melasma.

Table 5: Distribution of Participants' Answers from Melas-QoL Quesionner in Group of Centrofacial Participants

Item	Answer (%)						
	1	2	3	4	5	6	7
The appearance of your skin condition	1 (5.3)	1 (5.3)	0 (0)	1 (5.3)	4 (21.1)	2 (10.5)	10 (52.6)
Frustration about your skin condition	6 (31.6)	1 (5.3)	0 (0)	3 (15.8)	5 (26.3)	1 (5.3)	3 (15.8)
Embarrassment about your skin condition	6 (31.6)	3 (15.8)	0 (0)	1 (5.3)	3 (15.8)	2 (10.5)	4 (21.1)
Feeling depressed about your skin condition	11 (57.9)	3 (15.8)	0 (0)	31.63 (15.8)	0 (0)	0 (0)	2 (10.5)
The effects of your skin condition on your interaction with other people	7 (36.8)	4 (21.1)	0 (0)	0 (0)	7 (36.8)	0 (0)	1 (5.3)
The effects of your skin condition on your desire to be with people	7 (36.8)	1 (5.3)	0 (0)	4 (21.1)	5 (26.3)	0 (0)	2 (10.5)
Your skin condition making it hard to show affection	15 (78.9)	1 (5.3)	0 (0)	1 (5.3)	1 (5.3)	0 (0)	1 (5.3)
Skin discoloration making you feel unattractive to others	4 (21.1)	1 (5.3)	0 (0)	4 (21.1)	6 (31.6)	1 (5.3)	3 (15.8)
Skin discoloration making you feel less vital or productive	11 (57.9)	2 (10.5)	0 (0)	2 (10.5)	3 (15.8)	0 (0)	3 (15.8)
Skin discoloration making you sense of freedom	9 (47.4)	2 (10.5)	0 (0)	3 (15.8)	3 (15.8)	0 (0)	2 (10.5)

Based on table above, it could be observed that 52.6% of participants who had centrofacial melasma felt very distrubed about their apperance of skin condition and 31.6% of participants sometimes felt unattractive due to their skin discoloration. Whereas, There were 36.6% of participants who had centrofacial melasma felt neither frustrated nor embarrassed about their skin condition and 57.9% didn't feel depression about their skin condition. While the most of participants who had centrofacial melasma did not effect on their interaction with other people (36.8%) or their desire to be with people (36.8%), did not make it hard to show affection (78 .9%), and did not make them feel less vital or productive (57.9%) or sense of freedom (47.4%).

Table 6: Distribution of Participants' Answers from Melas-QoL Quesionner in Group of Malar Participants

Item	Answer (%)						
	1	2	3	4	5	6	7
The appearance of your skin condition	3	10	0	13	15	5	17
	(4.8)	(15.9)	(0)	(20.6)	(23.8)	(7.9)	(27.0)
Frustration about your skin condition	28	1	1	10	14	1	8
	(44.4)	(1.6)	(1.6)	(15.9)	(22.2)	(1.6)	(12.7)
Embarrassment about your skin condition	26	2	1	6	17	1	10
	(41.3)	(3.2)	(1.6)	(9.5)	(27.0)	(1.6)	(15.9)
Feeling depressed about your skin condition	41	6	1	6	6	1	2
	(65.1)	(9.5)	(1.6)	(9.5)	(9.5)	(1.6)	(3.2)
The effects of your skin condition on your interaction with other people	23	15	0	11	8	3	3
	(36.5)	(23.8)	(0)	(17.5)	(12.7)	(4.8)	(4.8)
The effects of your skin condition on your desire to be with people	23	8	0	17	8	4	3
	(36.5)	(12.7)	(0)	(27.0)	(12.7)	(6.3)	(4.8)
Your skin condition making it hard to show affection	52	3	1	3	3	0	1
	(82.5)	(4.8)	(1.6)	(4.8)	(4.8)	(0)	(1.6)
Skin discoloration making you feel unattractive to others	22	9	2	5	18	0	7
	(34.9)	(14.3)	(3.2)	(7.9)	(28.6)	(0)	(11.1)
Skin discoloration making you feel less vital or productive	49	6	0	3	3	0	2
	(77.8)	(9.5)	(0)	(4.8)	(4.8)	(0)	(3.2)
Skin discoloration making you sense of freedom	26	10	0	6 (9.5)	15	0	2
	(41.3)	(15.9)	(0)		(23.8)	(0)	(10.5)

Based on the table above, it could be observed that 27% of participants who had malar melasma felt very disturbed about their skin condition. However, there were 44.4% of participants who had malar melasma felt neither frustration nor embarrassment about their skin condition and 65.1% of participants who had malar melasma did not feel depressed due to their skin condition. While most of the participants who had malar melasma did not effect on their interaction with other people (36.5%) or their desire to be with people (36.5%), did not make it hard to show affection (82.5%), and did not make them feel unattractive (34.9%) or less vital or productive (77.8%) or sense of freedom (41.3%). The comparison of total Melas-QoL score in each type of melasma in the results of this study shows that there was a higher tendency of total Melas-QoL score in the centrofacial melasma then malar melasma. However, the One-way ANOVA test showed that there was no difference in total Melas-QoL score from each type of melasma statistically due to the p-value of the test was 0.251 as shown in table 3 above. Based on the Melas-QoL score in the table above, 95% of the Confidence interval for the quality of life of patients with centrofacial melasma was good-moderate and malar melasma was good. This value was obtained from the CI 95% value of total Melas-QoL score from each type of melasma then the value was categorized according to Tursina and his colleagues (2017) [13]. The result of this study report that there were no differences in quality of life between melasma types (sentimental and malar) among the participants. This was shown by the p-value that more than 0.05 (P-value = 0.251). However there was a significant difference in the answer of the first question between each group of sample about their skin condition, it was shown by the p-value of the first question in the table 4 above which is lower than 0.05 (p-value = 0.026). Based on the table above the number of participants who had centrofacial melasma felt disturbed about their skin condition was 84.2% while there was 58.7% felt disturbed about their skin condition in the participant who had malar melasma. Melasma affects most of the participants' quality of life. It was reported by Ikino and his colleagues (2015) [12] in 51 melasma patients at the Universidade Federal de Santa Catarina Teaching Hospital reported that melasma affected the quality of life, especially the emotional aspects, including feelings of disruption (94.11%), frustration and shame (64.71%), and depression (52.94%) in conditions the skin. However, the social aspects do not show a significant effect. More specifically, the severity of melasma affects the patient's quality of life. It was reported by Ali and his colleagues (2013) [18] by using the Dermatology Life Quality Index (DLQI) questioner to measure the quality of life and the Melasma Area Severity Index (MASI) to determine the severity of melasma in 100 patients who suffer melasma in the Mayo Hospital dermatology department from 2009 to 2010 showed similar result with this study where the decrease in quality of life is greater in women and the severity of melasma is more severe, this can be seen from the DLQI Score of 16.23 ± 5.35 in mild melasma, 19.32 ± 3.99 in moderate melasma, and 22.0 ± 2.0 in severe melasma. However, [19] reported that amount of 49 women who was diagnosed with melasma were referred to tertiary dermatology in Singapore using the Melas-QoL and DLQI questioner to measure quality of life and the MASI score to determine the severity of melasma showed opposite results where there was no correlation between the degree of melasma and quality patient's life as measured by Melas-QoL and DLQI. According to (Noor, 2008) [20] three factors influence the quality of measurement, namely the characteristics of the subject being measured, the person who measured it, and the measuring instrument used to measure the object. So, the reason for differences in the results of the study of [18] and [19] can be due to differences in the characteristics of the research subject. Referring to Ali and his colleagues (2013) [18] reported that a greater reduction in quality of life in more severe melasma. Where the results of measuring the severity of melasma used the MASI score. The

MASI score consists of three components, namely Darkness, homogeneity, and the area involved. Whereas in this study, the clinical presentations were more emphasized than the severity of melasma, while the determination of the clinical presentations was only based on the area involved without considering the level of darkness or homogeneity. So that it is reasonable if there are differences in the results of measurements in each study because there are differences in the measuring instrument of the object under the study and differences in the characteristics of the subject being measured.

4. Conclusion

There were no significant differences between each type of melasma. However, there was a significant difference number of participants who are bothered about their skin appearance between participants who had centrofacial and malar type.

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