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Gratitude, Optimism, Religiosity, and Subjective Well-Being among Asthma Patients in Yogyakarta, Indonesia

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Abstract

This research aimed to analyze the correlation between three variables (gratitude, optimism, and religiosity) and subjective well-being among asthma patients. The subjects of this research were 160 Muslim asthma patients aged 18-39 years-old in Yogyakarta, Indonesia. Data were collected using researcher-administered questionnaires consisting of five scales. Subjective well-being was measured using two scales: *Positive Affect and Negative Affect Schedule* (PANAS) scale and *Satisfaction with Life Scale* (SWLS). Gratitude was measured using the *Psychological Measure of Islamic Gratitude* (PMIG) scale. Optimism was measured using the *Life Orientation Test-Revised* (LOT-R) concept. Religiosity was measured using five dimensions: belief, religious practices, religious experiences, religious knowledge, and practicing and consequence. The result showed a positive correlation between three variables (gratitude, optimism, and religiosity) and subjective well-being among asthma patients. Furthermore, the results also showed that there was no significant difference of subjective well-being between male and female subjects, between adolescent and adult subjects, and between groups of subjects based on duration of being diagnosed with asthma.

Keywords: Asthma, Chronic disease, Gratitude, Islamic gratitude, Islamic religiosity, Optimism, Religiosity, Subjective well-being.

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1. Introduction

Asthma is a chronic disease that causes breathing difficulty, coughing, and wheezing in patients who can relapse at any time. Asthma has affected about 300 million people of all ages around the world. It causes interference of respiratory symptoms, restrictions on activities, and attacks that sometimes require urgent health care, which may be fatal. The symptoms are related to expiratory airflow, which is a difficulty occurring when the air escapes from the lungs due to airway constriction, thickening of the respiratory wall, and increased mucus [1].

Indonesia has a prevalence of asthma patients of 4.5% and cases of asthma commonly appear among females. According to the demographic location in Indonesia, the provinces with the highest prevalence of asthma are Central Sulawesi (7.8%), Nusa Tenggara Timur (7.3%), Special Region of Yogyakarta (6.9%) and South Sulawesi (6.7%) [2]. Being included among the four provinces with the highest prevalence of asthma is quite intriguing for the Special Region of Yogyakarta. Based on Human Development Index 2020, the province was categorized as high human development with a score of 0.799. This score was better than the national standard of 0.719 and was far better than the other three provinces [3]. Asthma patients, as many others with a chronic disease, tended to have issues related to subjective well-being [4, 5]. Individuals with a chronic disease suffered from adverse effects within themselves, such as anxiety, stress, and guilty feeling, [6] which lead to decreasing well-being [7, 8]. Anxiety among asthma patients could be the result of being afraid about the recurrence of asthma [9]. Such a condition leads to more issues related to emotional and psychological well-being of asthma patients [10]. Furthermore, patients with asthma and other respiratory problems experienced depression that affected their physical health [11].

This study was inspired mainly by the fact that Special Province of Yogyakarta is one of provinces with a high prevalence of asthma and by the importance of improving subjecting well-being among asthma patients. The main idea was to improve subjective well-being among asthma patients by analyzing factors that correlated with it. Previous research in Indonesia regarding asthma patients was focused on medical aspects, such as the factors behind it Hamid, et al. [12]; Hostiadi, et al. [13], the health condition of patients [14, 15] and other medical related topics. Other research also focused on development of information and communication technology behind asthma diagnosis and treatment [16, 17].

This study analyzed asthma from a psychological perspective with emphasis on subjective well-being among patients. Many factors could impact subjective well-being: gratitude [18-21]; optimism [22-26]; religiosity [27-31] and others.

Some benefits were expected from this study by analyzing the correlation of gratitude, optimism, and religiosity with subjective well-being among asthma patients. In this study, the influencing factors focus on optimism, religiosity, and gratitude. Theoretical benefits could be a contribution to the body of knowledge, especially in psychology, public health, and the general public. Furthermore, the practical benefits of this study could be in the form of information on the description of subjective well-being among asthma patients in Yogyakarta that would help increase awareness of asthma patients and their relatives.

2. Research Method

2.1. Research Subjects

This study used purposive sampling to collect data from research subjects. The criteria of the subjects in this study were (a) men and women diagnosed with asthma; (b) aged 18-39 years-old; and (c) Muslim. The research subjects in this study were asthma patients taking medication at the Lung Specialty Hospital in Yogyakarta, Indonesia. The hospital is managed by the Local Government of Special Province of Yogyakarta. The total number of research subjects was 160 asthma patients. The diagnosis of the types of asthma was conducted by medical personnel in the hospital.

2.2. Data Collection Method

This research was conducted quantitatively. The data collection method used in this study was the scale method or a questionnaire to collect quantitative data. The scale method could be used to reveal data from psychological constructs that describe aspects of individual personality in the form of statements as a stimulus to provoke answers as reflection of the state of the subject [32]. The data collection technique used in this study was a purposive sampling technique, which is the selection of samples taken with specific objectives following predetermined characteristics [33].

The research proposal as base of this study was submitted to Department of Psychology, Faculty of Psychology and Socio-Cultural Sciences, Universitas Islam Indonesia, Yogyakarta. The proposal, along with its questionnaires, were reviewed and approved by the department for ethical issues and other procedural techniques. After that the research process was started. Before collecting data, the researchers first asked permission from the hospital regarding the research to be carried out. After the permission was granted, the hospital asked the researchers to collect the data after the doctor's treatment session on asthma patients had been completed. The researchers waited in the general examination room to confirm patients with asthma. After the patients left the doctor's examination room, the researchers invited them to a specific room for data collecting purpose. The researchers introduced themselves, gave the questionnaire, and explained the purpose of giving it,

including obtaining a consent statement. Once the patients agreed to the collecting data, the researchers read out each item in the questionnaire, to which the respondent gave a response in the form of an answer that was be recorded by the researchers. Only the data that has met the standards would be considered for further analysis.

2.3. Measurement

There were several scales used in this study to measure research variables. Subjective well-being was measured using two scales developed based on subjective well-being aspects by Watson [34], named Positive Affect and Negative Affect Schedule (PANAS) scale and by Diener, et al. [35] named Satisfaction with Life Scale (SWLS scale). Previous studies had adapted these scales for the Indonesian context [36, 37]. The pattern of measuring the subjective well-being scale followed the Likert scale pattern. For the PANAS scale, the answer choices were modified into five choices: Very Rarely (VR), Rarely (R), Average (A), Often (O), and Very Often (VO). The assessment of items ranged from (1) to (5). Very Rarely (VR) statement was scored 1, Rarely (R) was scored 2, Average (A) was scored 3, Often (O) was scored 4, and Very Often (VO) was scored 5.

For the SWLS scale, the answer choices consisted of seven optional answers: Strongly Agree (SA), Agree (A), Somewhat Agree (SAG), Neutral (N), Somewhat Disagree (SAD), Disagree (D), and Strongly Disagree (SD). The assessment of each item ranged from 7 to 1. Strongly Agree (SA) was given a score 7, Agree (A) was scored 6, Somewhat Agree (SAG) was scored 5, Neutral (N) was scored 4, Somewhat Disagree (SAD) was scored 3, Disagree (D) was scored 2, and Strongly Disagree (SD) was scored 1. The reliability value for Positive Affect ranged between $\alpha = 0.86$ to $\alpha = 0.90$ for minimum and maximum scores move between 10 and 50. Meanwhile, the reliability value for Negative Affect ranged between $\alpha = 0.84$ to $\alpha = 0.87$, for minimum and maximum scores move between 10 and 50 [34]. For the SWLS scale, the maximum and minimum scores obtained are 35 and 5, with Cronbach's Alpha $\alpha = 0.87$ [35].

The procedure for obtaining a total score for subjective well-being was by making a reduction for Positive Affect and Negative Affect, then by adding the results with a score of Satisfaction with Life Scale. In other words, the formula for calculating the value of subjective well-being was SWB = SWLS + (PA-NA). Before applying the formula, each score of subjective well-being was transformed into the standard by changing it to *Z*-value. This procedure was important because the scales and their method of measurement were different. Using this procedure correctly would ensure that absolute scores for subjective well-being were obtained [38]. The total score obtained by each subject showed the score of the subjective well-being: the higher the score obtained, the higher the subjective well-being of the subject. The distribution of subjective well-being items used in this study is described in Table 1.

Table 1.
Distribution of subjective well-being items.

Aspect	Item number	Total
Positive affect	1, 3, 5, 9,10, 12, 14, 16, 17, 19	10
Negative affect	2, 4, 6, 7, 8, 11, 13, 15, 18, 20	10
Satisfaction with life	21, 22, 23, 24, 25	5
Total		25

The optimism scale used in this study was a modified scale from Scheier, et al. [39], named the Life Orientation Test-Revised (LOT-R). The aspects used were optimism and pessimism. The LOT-R scale has ten items with three positive items (favorable), three negative items (unfavorable), and four distraction items. Favorable questions were questions that support the object being measured, while unfavorable questions were questions that do not support the object to be measured [40]. Distribution of the LOT-R scale along with an item sample is described in Table 2.

Table 2.
Distribution of LOT-R scale items.

Aspect	Item number	Item sample
Positive	1, 4, 10	I'm always optimistic about my future. (4)
Negative	3, 7, 9	I rarely count on good things happening to me. (9)
Distraction	2, 5, 6, 8	It's easy for me to relax. (2)
Total	10	

Gratitude was measured using the Psychological Measure of Islamic Gratitude (PMIG) adapted from Kurniawan, et al. [41] that has been used in some previous research [42, 43]. PMIG aimed to measure the frequency of gratitude behavior with 25 items and was favorable. The scoring system of this scale used a modified Likert scale with five optional answers: Almost Always (AA), Rarely (R), Sometimes (S), Often (O), and Almost Never (AN). For assessment, each item ranged from (5) to (1): Almost Always (AA) was given a score of 5, Often (O) was scored 4, Sometimes S was scored 3, Rarely (R) was scored

2, and Almost Never (AN) was scored 1. The PMIG has good psychometric values with an overall reliability value of α = 0.935 [41]. The distribution of gratitude items used in this study is explained in Table 3.

Table 3.
Distribution of gratitude items.

Aspects	Item number	Total
Gratitude with heart	1, 5, 9, 13, 17, 19, 21, 23, 25	9
Gratitude with tongue	2, 6, 10, 14, 18, 20, 22, 24	8
Gratitude with action	3, 7, 11, 15	4
Gratitude to others with tongue	4, 8, 12, 16	4
Total		25

The religiosity scale in this study was adapted from Abu Raiya, et al. [44]. Initial adaptation for the Indonesian context used a subscale of 25-items from original 60-items [45]. The subscale consisted of five dimensions: Islamic belief, Islamic practice, ethical conduct do, ethical conduct don't, and Islamic universality. This study adapted Abu Raiya, et al. [44] and Hapsari [45] and added some Islamic basic teaching regarding the five pillars of Islam and the six pillars of Faith. The dimensions of religiosity this study used were belief, religious practices, religious experiences, religious knowledge, and practicing and consequence. The scale of religiosity was prepared using a Likert model attitude scale, structured to express pro and contra, positive and negative attitudes, and agree and disagree with a social object [40]. The religiosity scale consisted of 25 items each with five optional answers: Very Agree (VA), Agree (A), Neutral (N), Disagree (D), and Very Disagree (VD). Items contained on the scale were categorized as favorable (supporting the measured attribute) and unfavorable (not supporting the measured attribute). Table 4 explains the distribution of the religiosity items.

Table 4.
Distribution of religiosity items.

No	Aspect	Item number		Total
		Favorable	Unfavorable	
1	Belief	1, 2	11, 12, 14, 15, 16	7
2	Religious practices	3,7, 22	-	3
3	Religious experiences	4, 5, 6	13, 23, 25	6
4	Religious knowledge	8, 24	17, 18	4
5	Practicing and consequence	9, 10	19, 20,21	5
Total		12	13	25

2.4. Data Analysis Method

Data obtained in this study was categorized as quantitative. After described statistically, the data was analyzed using normality, linearity, and correlation tests. The correlation test was conducted using Pearson's product moment to determine the correlation between two research variables. Additional analysis in this study was conducted to further explore subjective well-being among respondents based on some demographic data. All estimations were computed using the IBM SPSS Statistics.

Table 5.
Description of research subjects' demographic data.

Demographic data	Description	N	%
Sex	Male	59	36.88
	Female	101	63.12
Age	≤ 19 years-old (adolescent)	51	31.88
	> 19 years-old (adult)	109	68.12
Education	Elementary school	2	1.25
	Junior high school	8	5.00
	Senior high school	115	71.88
	Higher education	35	21.87
Duration of being diagnosed with asthma	0-5 years	21	13.13
	6-10 years	29	18.12
	11-15 years	53	33.12
	> 16 years	57	35.63

3. Results

3.1. Descriptive Statistics

The subjects in this study were 160 asthma patients who were Muslims and aged 18-39 years old. Respondents' demographic data in this study can be described based by sex, age, education, and duration of being diagnosed with asthma. Table 5 describes demographic data of subjects.

Table 5 shows that the number of respondents in this study is 160 respondents, consisting of 59 male (36.88%) and 101 females (63.12%). The age grouping of subjects in this study is divided based on Santrock's (2001) developmental theory. Individuals in the age range of ≤ 19 years-old were included in the adolescent group while individuals who have the age range of > 19 years-old were included in the adult group. 51 (31.88%) respondents of this study were in the teenage age group and 109 (68.12%) were in the adult age group. Based on their educational background, respondents were divided into four groups: elementary school, junior high school, senior high school, and higher education. The number of respondents for each group is 2 (1.25%), 8 (5%), 115 (71.88%), and 35 (21.87%) respectively. Based on the above data, the educational background of the respondents in this study is mostly high school. The table also shows four groups of duration of being diagnosed with asthma [46]: 0-5 years, 6-10 years, 11-15 years and ≥ 16 years. The data indicates that the majority of respondents have been diagnosed with asthma for 11-15 years (53 or 33.12%), and more than 16 years (57 or 35.63%).

Based on the data obtained from the four variables, each respondent was categorized into five groups: very low, low, middle, high, and very high. Table 6 describes the categorization used for respondents and variable in the study.

Table 6.
Categorization of respondents based on subjective well-being scale score.

Categorization	Subjective well-being		Gratitude		Optimism		Religiosity	
	N	%	N	%	N	%	N	%
Very low	20	12.50	22	13.75	18	11.25	26	16.25
Low	40	25.00	32	20.00	36	22.50	28	17.50
Middle	38	23.75	38	23.75	20	12.50	36	22.5o
High	51	31.87	36	22.50	66	41.25	30	18.75
Very high	11	6.88	32	20.00	20	12.50	40	25.00

3.2. Normality and Linearity Test

The normality test aimed to analyze whether the data was normally distributed or not. The parametric analysis was used in this test with the norm used was if $p > 0.05$, the data was normally distributed, and if $p < 0.05$, the data was not normally distributed. The results of the normality test are shown in Table 7. The results indicated that subjective well-being, gratitude, and religiosity were normally distributed. Optimism was the only variable not normally distributed.

Table 7.
Normality test results.

Variables	*p*	Decision
Subjective well-being	0.200	Normally distributed
Gratitude	0.200	Normally distributed
Optimism	0.000	Not normally distributed
Religiosity	0.200	Normally distributed

The linearity test aimed to analyze whether the two research variables had a linear relationship or not. The relationship between the two variables was linear if $p < 0.05$. The results of the linearity test on variables of this study are presented in Table 8. The data in the table indicated that the relationship between gratitude and subjective well-being, the relationship between optimism and subjective well-being, and the relationship between religiosity and subjective well-being were linear.

Table 8.
Linearity test results.

Variables relationship	*F*	*p*	Decision
Gratitude and subjective well-being	26.294	0.000	Linear
Optimism and subjective well-being	122.486	0.000	Linear
Religiosity and subjective well-being	93.686	0.000	Linear

Notes: *F* = Linearity coefficient; *p* = significance value.

3.3. Correlation Test

The Correlation test aimed to analyze whether two variables were significantly correlated or not. The test could also determine whether the relationship was positive or negative. The technique used in this study was the *Spearman* correlation

test and the results are described in Table 9. Based on the results, Spearman's correlation coefficients for each correlation were significant. It implied that three relationships (between gratitude and subjective well-being, between optimism and subjective well-being and between religiosity and subjective well-being) in this study had positive and significant correlations.

Table 9.
Correlation test results.

Variable's relationship	r_s	p	r^2
Gratitude and subjective well-being	0.516	0.000	0.266
Optimism and subjective well-being	0.676	0.000	0.456
Religiosity and subjective well-being	0.832	0.000	0.692

Notes: r_s = Spearman's correlation coefficient; p = significance value; r^2 = coefficient of determination.

The table also informed the coefficient of determination (r^2) of each correlation. The correlation between religiosity and subjective well-being showed highest value of coefficient of determination with r^2 = 0.692. It implied that religiosity correlated approximately 69.2% with subjective well-being. Correlation between optimism and subjective well-being was the second best one in this study with r^2 = 0.456. Gratitude and subjective well-being were the least correlated in this study with r^2 = 0.266.

Additional analysis was conducted to further analyze the contribution of demographic factors to subjective well-being. The results of additional analysis are presented in the following tables. The first additional analysis aimed to analyze whether the mean of subjective well-being between male and female subjects was different or not. Table 10 shows the results of an independent sample *t*-test for male and female subjects in this study. The result shows that there is no significant difference in mean subjective well-being between male and female.

Table 10.
Independent sample *t*-test for male and female results.

Variable	Mean		Independent sample *t*-test	
	Male	Female	*F*	Sig.
Subjective well-being	52.37	46.94	1.101	0.407

The second additional analysis aimed to analyze whether the mean of subjective well-being between adolescent and adult groups was different or not. Table 11 shows the results of a One-way ANOVA test for adolescent and adult groups. The results show that the mean subjective well-being was not significantly different for at least one of two groups.

Table 11.
One-way ANOVA test for adolescent and adult groups results.

Variable	Mean		One-way ANOVA	
	≤ 19 years-old (adolescent)	> 19 years-old (adult)	*F*	Sig.
Subjective well-being	47.80	51.96	0.617	0.388

The third additional analysis aimed to analyze whether the mean of subjective well-being between duration of being diagnosed with asthma was different or not. Table 12 shows the results of a One-way ANOVA test for four groups of asthma patients based on the number of years' duration of being diagnosed. The results show that the mean subjective well-being was not significantly different for at least one of four groups.

Table 12.
One-way ANOVA test for patients subjective well-being results.

Duration of being diagnosed with asthma	*One-way ANOVA*			
	Mean	*F*	Sig.	Decision
0-5 years	46.77	1.55	0.397	not significantly different
6-10 years	44.63			
11-15 years	49.32			
>16 years	51.31			

4. Discussion

This study aimed to analyze the relationship between optimism, religiosity, gratitude and subjective well-being in asthma patients. The study showed that optimism, gratitude, and religiosity had a positive significant relationship with subjective

well-being among asthma patients. These results implied that the higher the gratitude, the optimism, and the religiosity of asthma patients, the higher their subjective well-being and vice versa. In addition, the results also showed the effective contribution of each variable of optimism, religiosity and gratitude to subjective well-being. Religiosity had the highest contribution, followed by optimism and gratitude.

Asthma patients should improve their subjective well-being to reduce the risk of recurrence. The state of the mind was related to the state of the body so that the health of the individual could be influenced by their psychological state and the surrounding environment [47]. Positive thoughts and a supportive environment could improve the individual's health and subjective well-being. Many studies have suggested the importance of subjective well-being on health [48] as well as the interrelation between health and subjective well-being [49-51].

Religiosity could play important role in the physical and psychological health of patients with a chronic disease [52, 53], including asthma. Religious commitment can prevent and protect individuals from disease, improve their ability to cope with physical and psychological diseases, and accelerate healing [54]. Individuals with weak religious beliefs tended to feel less happy, while those who were religious tended to have a higher level of subjective well-being [55]. Individuals who found a connection between the existence of the world and God had better state of peace within [56].

The existence of a religious dimension could influence an individual's subjective well-being through the creation of a positive affect that brings joy and peace. The current study shows that religiosity and subjective well-being were positively and significantly correlated among asthma patients. It implied that the current study also supported previous finding on the correlation between religiosity and subjective well-being. Previous studies with an Indonesian context also revealed a positive relationship between religiosity and subjective well-being among chronic disease patients [57, 58] as well as those who dealt with natural disasters [59].

Optimism referred to the tendency to expect something good and is often associated with physical and mental well-being. It was also related to the components of subjective well-being. An optimistic individual tended to have higher subjective well-being than a pessimistic one [23]. Furthermore, optimistic individuals believe in positive things, making it easier to achieve their goals in life. On the other hand, pessimistic individual focused more on failure, making it more difficult to achieve the goals in life [60]. Optimism can have a major impact on mental and physical well-being by encouraging a healthier lifestyle as well as adaptive behaviors and cognitive responses linked to greater resilience, problem-solving capacity and a more efficient elaboration of negative knowledge [61].

The current study shows that optimism is positively and significantly correlated with subjective well-being among asthma patients. This finding supported previous studies in the context of patients with chronic disease. The finding was also in line with the same context of patients with chronic disease in Indonesia [62-64] as well as in another related context such as a caregiver [65]. However, it should also be considered that optimism might not positively correlated with well-being or quality of life among patients of chronic disease [66].

Gratitude was also an important factor of subjective well-being that an individual should pay attention to. Gratitude could be placed in the context of positive emotions as a dimension of subjective well-being. Individuals who have a high level of gratitude have positive effects such as happiness, vitality, and hope. Objects of gratitude are usually directed to people, or impersonal (nature) and or non-human sources (God). This can affect an individual's level of subjective well-being because the more they draw closer to God they can survive facing every trial and can think positively [22, 67].

Gratitude could reduce negative emotions so that a grateful individual could easily achieve happiness and be full of the peace life. This would lead to a higher level of subjective well-being [68]. Gratitude itself focuses on an individual's attention to what has been provided in life, which could create a sense of life satisfaction [69]. Gratitude in the current study correlated with subjective well-being among asthma patients. This finding supported previous studies on correlation between gratitude and subjective well-being [70-72].

The finding on gratitude in the current study was also in line with previous studies in Indonesia. Gratitude was among the important factors impacting the well-being of patients with schizophrenia [73, 74], diabetes mellitus [75], and pulmonary disease [76] or their caregivers. The current study used psychological measures of Islamic gratitude [41] for gratitude measurement and indicated similar results with other scales. It implied that this study provided a solid background for psychological measures of Islamic gratitude for a Muslim and an Indonesian context.

5. Conclusion

This study shows a positive correlation between gratitude and subjective well-being, between optimism and subjective well-being and between religiosity and subjective well-being among asthma patients. Religiosity had highest significant contribution to subjective well-being followed by optimism, and gratitude respectively. This study also shows no significant difference in subjective well-being among asthma patients based on sex, age, and duration of diagnosis. Based on these findings, some suggestions could be proposed for asthma patients as well as for caregivers and relatives to improve subjective well-being. Improving religiosity, which in this case was among Muslims, should be a priority for its highest significant

contribution. Being optimistic and grateful should also be emphasized since both attitudes were also among good deeds taught in Islam.

This study had several limitations that should be analyzed further in the next research. The first limitation was in the variables use, which were limited to gratitude, optimism, and religiosity as factors affecting subjective well-being. A more sophisticated and ranged group of variables should be employed for further study. Asthma patients in this study were categorized based on treatment which might impact on subjective well-being. This treatment as a categorization should also be considered for further study.

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