

Original Research Article

Correlation between body constitution and quality of life in hypertensive elderly in the Berbah health center area

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ABSTRACT

Background: One of the health conditions that the majority of the elderly experience is hypertension. Those who cannot adjust to changes in their physical condition and health decline will experience a deterioration of their quality of life. The elderly's health conditions can be examined using traditional Chinese medicine constitution which is used for disease prevention, treatment, and health improvement. This research aimed to investigate the correlation between body constitution and quality of life in hypertensive elderly patients in Sendangtirto Village.

Methods: This research employed a quantitative approach with an analytic research type and cross-sectional design. The respondents of this research were 79 elderlies with hypertension in Sendangtirto Village, obtained by simple-random sampling technique. This research was started from February to March 2023. The instruments used were the traditional Chinese medicine constitution (TCMC) and the WHOQoL-BREF instruments. The analytical test employed was Kendall's tau correlation to investigate the correlation between the two examined variables.

Results: This research shows that 64.5% (51 respondents) can be categorized into sick category and 35.44% (28 respondents) are in non-sick category. As many as 87.34% (69 respondents) were in moderate quality of life and 12.66% (10 respondents) are in high quality of life. The final result of body constitution and the final result of quality of life did not have a significant correlation ($p=0.306$; $r=0.116$).

Conclusions: Body constitution and quality of life do not have a significant correlation in hypertensive elderly in Sendangtirto village.

Keywords: Body constitution, Elderly, Hypertension, Quality of life

INTRODUCTION

The number of elderly people over 60 years of age has increased until 2020. During 1971-2020, the percentage of Indonesian elderly has approximately doubled, namely to 9.92% or around 26 million.¹ Based on the results of the 2020 population census by the central agency statistics for the special region of Yogyakarta, the number of elderly people reaches 577,823 people or 15.75% of the total population of the special region of Yogyakarta. The number of elderly people in Sleman regency reaches 156,891 people or 14.65% of the total population of Sleman regency.² The elderly population which has increased shows that the life expectancy of the elderly is

getting higher. This high elderly population will lead to an increase in cases of degenerative diseases as a result of the aging process of the elderly.

The aging process can result in the appearance of physical disorders in the cardiovascular system, namely a decrease in the elasticity of the heart's blood vessels and a decrease in cardiac output.³ This change in physiological function causes a decrease in physical condition, when the elderly cannot adjust to changes in physical condition and their health decreases, it will lead to decreased quality of life in the elderly. It was recorded that in 2020 as many as 48.14% of the elderly in Indonesia experienced health complaints and reached 24.35% of the elderly in

Indonesia experienced illness. In addition, in 2020, hypertension is a non-communicable disease that affects the most people in Sleman regency. Other data shows that Berbah district ranks fourth with the highest hypertension population in Sleman, this is a consideration for this research to be carried out in Berbah district.²

Various attempts have been made to treat hypertension from conventional medicine to traditional medicine. One of the concepts in TCM theory is TCMC (traditional Chinese medicine constitution) or the physical constitution of TCM. This type of physical constitution can be applied to the prevention of disease, the treatment of disease, and the promotion of health. The physical constitution is a criterion or intrinsic state of the human body that integrates morphological, physiological and psychological structures and is influenced by environmental factors and genetic background. The physical constitution is classified into nine categories namely qi-deficiency, yang-deficiency, yin-deficiency, phlegm-dampness, damp-heat, blood stasis, qi-stagnation, inherited special, and balanced. In addition, physical constitution can be used to evaluate an individual's health status.⁴

Seeing that changes in physical constitution are one of the factors that can affect the level of quality of life for the elderly, the researchers intend to conduct further studies and research to determine the relationship between physical constitution and quality of life in elderly hypertensive patients. Several studies have examined the relationship between physical constitution and various diseases, but there are still very few studies linking it to aspects of quality of life. Research related to this kind of physical constitution is still rare in Indonesia. Therefore, it occurred to researchers to examine how the relationship between physical constitution and quality of life of the elderly with hypertension in the working area of the Berbah health center.

METHODS

This research was a quantitative study using an analytic design with a cross sectional approach. This research was conducted by taking locations in the working area of the Berbah health center, Sleman regency, Yogyakarta. The population in this study were the elderly who were in the Sendangtirto village and were registered as patients with a diagnosis of hypertension at the Berbah health center. Data collection starts from February to 5 March 2023.

Samples were taken based on inclusion and exclusion criteria. The inclusion criteria included elderly >60 years old, diagnosed with hypertension, treated at the Berbah health center, and domiciled in Sendangtirto. Exclusion criteria included experiencing communication disorders, decreased awareness, and could not be visited or contacted. The sampling technique that the researchers used was a probability sampling technique with a simple random sampling type. The sample size in this study was

calculated using the Lemeshow formula. The minimum sample size required is 79 people. The variables in this study are physical constitution as the independent variable and quality of life as the dependent variable. This study used demographic data questionnaires, the traditional Chinese medicine constitution (TCMC) instrument to assess physical constitution and the World Health Organization Quality of Life-BREF (WHOQOL-BREF) instrument to assess quality of life.

The researcher used the TCMC questionnaire which has been translated into Indonesian and has been tested by Nurjannah et al.⁵ The validity test used to test the TCMC instrument is construct validity with Pearson correlation (Sig. value (2-tailed) <0.05 indicates valid).

Meanwhile, the reliability test uses Cronbach's alpha analysis with medium-high scores.⁵ The WHOQOL-BREF instrument used in this study has been translated into Indonesian and has been tested by Salim et al.⁶ The validity test used by Salim et al is validity discriminant and construct validity.⁶ The results of discriminant analysis showed that there were significant differences in scores in the physical, psychological, and environmental domains, but not statistically significant in the social relations domain. However, studies conducted in 24 countries show consistent results that this instrument is valid.¹¹ The construct validity test uses factor analysis. The loading factor value was >0.5 and the eigenvalue values of the four domains >1 were valid. The reliability test uses internal consistency analysis using Cronbach's α , inter-item correlation, and correlation between domains. Cronbach's alpha value was >0.7 in all domains except the social relations domain. Several studies mentioned in the journal Salim et al showed similar results regarding Cronbach's α value in the domain of social relations.⁶ The results of this study show that overall WHOQOL-BREF was reliable (consistent).⁶

The collected data was processed and then analyzed univariately to see the frequency distribution of each variable and bivariately to see the relationship between the two variables. Researchers analyzed the relationship between the two variables using the Kendall's tau correlation test through the SPSS program.

RESULTS

Respondents in this study were 79 elderly people with a history of hypertension who were randomly selected based on data obtained from the Berbah health center. The general characteristics of the respondents are presented in Table 1.

Table 1 shows that the most age group was the young elderly (60-69 years) with a total of 45 people (56.96%), the sex of the respondents was dominated by women with a total of 54 people (68.35%), the most recent education of the respondents was in basic education as many as 44 people (55.70%), and the marital status of the

respondents was dominated by married elderly as many as 41 people (51.90%).

Table 1: General characteristics of hypertensive elderly in Sendangtirto village.

| Variables | Frequency | Percentage |
|------------------------------|------------|------------|
| Age interval | 70.85±8.06 | |
| Young elderly (60-69 years) | 45 | 56.96 |
| Middle elderly (70-79 years) | 21 | 26.58 |
| Old elderly (≥80 years) | 13 | 16.46 |
| Gender | | |
| Male | 25 | 31.65 |
| Female | 54 | 68.35 |
| Educational level | | |
| No school | 8 | 10.13 |
| Elementary | 44 | 55.70 |
| Middle | 20 | 25.32 |
| University or above | 7 | 8.86 |
| Employment type | | |
| Self-employed | 3 | 3.80 |
| Retired | 8 | 10.13 |
| Housewife | 15 | 18.99 |
| Unemployment | 40 | 50.63 |
| Etc. | 17 | 16.45 |
| Marital status | | |
| Married | 41 | 51.90 |
| Single/widow/widower | 38 | 48.10 |

Table 2: Final score of quality of life (n=79).

| Level of quality of life | Final score | Frequency | Percentage |
|--------------------------|-------------|-----------|------------|
| Poor | <33 | 0 | 0 |
| Moderate | 33-67 | 69 | 87.34 |
| Good | >67 | 10 | 12.66 |

Table 3: Quality of life of elderly by domain (n=79).

| Category | Frequency | Percentage |
|---------------------------------------|-----------|------------|
| Domain 1. Physical | | |
| Poor | 2 | 2.53 |
| Moderate | 71 | 89.87 |
| Good | 6 | 7.59 |
| Domain 2. Psychological | | |
| Poor | 0 | 0 |
| Moderate | 67 | 84.81 |
| Good | 12 | 15.19 |
| Domain 3. Social relationships | | |
| Poor | 3 | 3.80 |
| Moderate | 51 | 64.56 |
| Good | 25 | 31.64 |
| Domain 4. Environment | | |
| Poor | 1 | 1.26 |
| Moderate | 44 | 55.70 |
| Good | 34 | 43.04 |

Table 4: Distribution of body constitutions component (Type 'a-h') (n=79).

| Body constitutions category | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Type 1. Qi deficiency | | |
| Sick | 8 | 10.13 |
| Pre-ill | 18 | 22.78 |
| Not sick | 53 | 67.09 |
| Type 2. Yang deficiency | | |
| Sick | 6 | 7.59 |
| Pre-ill | 13 | 16.46 |
| Not sick | 60 | 75.95 |
| Type 3. Yin deficiency | | |
| Sick | 1 | 1.27 |
| Pre-ill | 3 | 3.80 |
| Not sick | 75 | 94.93 |
| Type 4. Phlegm dampness | | |
| Sick | 0 | 0 |
| Pre-ill | 3 | 3.78 |
| Not sick | 76 | 96.20 |
| Type 5. Damp heat | | |
| Sick | 0 | 0 |
| Pre-ill | 3 | 3.78 |
| Not sick | 76 | 96.20 |
| Type 6. Blood stasis | | |
| Sick | 3 | 3.80 |
| Pre-ill | 11 | 13.92 |
| Not sick | 65 | 82.28 |
| Type 7. Qi stagnation | | |
| Sick | 2 | 2.53 |
| Pre-ill | 5 | 6.33 |
| Not sick | 72 | 91.14 |
| Type 8. Inherited special | | |
| Sick | 3 | 3.80 |
| Pre-ill | 7 | 8.86 |
| Not sick | 69 | 87.34 |

The results showed that the majority of respondents had a moderate quality of life, namely 69 elderly (87.34%). Most of the respondents were young elderly with moderate quality of life as many as 39 people (49.37%). Respondents were predominantly female with a moderate quality of life as many as 47 people (87.04%). The majority of respondents have basic education with a moderate quality of life of 40 people (50.63%). The majority of respondents work as entrepreneurs with moderate quality of life as many as 37 people (46.84%). Most of the respondents were single/widow/widow with moderate quality of life as many as 37 people (46.84%).

Based on the four quality of life domains, most of the elderly fall into the medium quality of life category. The physical health domain shows that the majority are in the moderate category as many as 71 people (89.87%). The psychological domain shows that most of them are in the

moderate category, with 67 people (84.81%). The domain of social relations shows that most of the moderate categories are 51 people (64.56%). Most of the environmental domains belong to the medium category, with 44 people (55.70%). Physical constitution was measured using the TCMC instrument which consisted of 67 questions. After collecting data on each type of constitution, for the type of constitution ‘a-h’ (or also known as the components of the physical constitution) a conversion value was calculated. The value conversion formula is as follows:

$$\text{Conversion score} = \frac{(\text{Raw score} - \text{number of questions})}{(4 \times \text{number of questions})} \times 100$$

So that each type of constitution is included in the classification of sick, pre-ill, or not sick. Each of these classifications is sick if the conversion score is ≥ 40 , pre-ill if the conversion score is 30-39, and not sick if the conversion score is < 30 . The type of physical constitution ‘i’ is also measured to calculate the convention score with the formula as above. The total assessment of type of constitution is the category of not sick if a person has a conversion score of type constitution ‘i’ of ≥ 60 and all other types of constitution (a-h) have a conversion value of ≤ 30 , the category of pre-illness if a person has a conversion score of type constitution ‘i’ of ≥ 60 and all other constitutional types (a-h) have a conversion value of ≤ 40 (between 31-40), a sick category if they do not meet the above criteria (a and b). Table 4 shows the distribution of the number of elderly in the sick, pre-ill, and not sick groups for each type of unbalanced physical constitution.

The final interpretation result is that the sick group is included in the unbalanced type. The unbalanced type is divided into eight groups, each of which has a sick, pre-ill, and not sick category. Table 2 shows the distribution of the number of elderly in the sick, pre-ill, and not sick groups for each type of unbalanced physical constitution.

The Kendall’s tau correlation test aims to determine the relationship between physical constitution and quality of life in elderly hypertensives. The correlation test was carried out in the domain of quality of life and type of physical constitution with the results of testing as many as 45 sets of data analysis. The test results are said to have a significant relationship if they have sig. (2-tailed) < 0.05 .

Table 5 shows that there are four p values < 0.05 and correlation values (r) ranging from 0.20 to 0.30. So, it can be concluded that qi deficiency has a very weak relationship with the social relations domain ($p=0.047$; $r=-0.214$), yang deficiency has a moderate relationship with the environmental domain ($p=0.014$; $r=0.270$), blood stasis has a weak relationship very weak with the physical health domain ($p=0.028$; $r=-0.243$), qi depression has a very weak relationship with the

environmental domain ($p=0.043$; $r=0.226$). However, it can be seen that the final outcome of physical constitution and the final outcome of quality of life do not have a significant relationship ($p=0.306$; $r=0.116$).

Table 5: Kendall’s tau score test between body constitution and quality of life.

| Body constitution type | Quality of life’s domain | Sign. (2-tailed) p value significant at $\alpha=0.05$ | Correlation coefficient |
|--------------------------|--------------------------|---|-------------------------|
| Qi deficiency | Physical | 0.206 | -0.137 |
| | Psychological | 0.680 | -0.450 |
| | Social relationships | 0.047* | -0.214* |
| | Environment | 0.920 | 0.184 |
| | Final score | 0.852 | 0.020 |
| Yang deficiency | Physical | 0.957 | 0.006 |
| | Psychological | 0.934 | 0.009 |
| | Social relationships | 0.064 | 0.201 |
| | Environment | 0.014* | 0.270* |
| | Final score | 0.664 | 0.048 |
| Yin deficiency | Physical | 0.732 | 0.038 |
| | Psychological | 0.388 | 0.097 |
| | Social relationships | 0.240 | 0.130 |
| | Environment | 0.080 | 0.196 |
| | Final score | 0.438 | 0.087 |
| Phlegm dampness | Physical | 0.769 | 0.033 |
| | Psychological | 0.458 | 0.084 |
| | Social relationships | 0.311 | 0.113 |
| | Environment | 0.131 | 0.170 |
| | Final score | 0.504 | 0.076 |
| damp heat | Physical | 0.769 | 0.033 |
| | Psychological | 0.375 | -0.100 |
| | Social relationships | 0.878 | -0.017 |
| | Environment | 0.723 | 0.040 |
| | Final score | 0.275 | -0.124 |
| blood stasis | Physical | 0.028* | -0.243* |
| | Psychological | 0.537 | -0.069 |
| | Social relationships | 0.331 | -0.107 |
| | Environment | 0.802 | -0.028 |
| | Final score | 0.257 | -0.126 |
| Qi stagnation | Physical | 0.439 | -0.086 |
| | Psychological | 0.923 | 0.011 |
| | Social relationships | 0.557 | 0.065 |
| | Environment | 0.043* | 0.226* |
| | Final score | 0.295 | 0.118 |
| Inherited special | Physical | 0.632 | -0.053 |
| | Psychological | 0.619 | -0.056 |
| | Social relationships | 0.471 | -0.079 |
| | Environment | 0.799 | 0.028 |
| | Final score | 0.506 | -0.074 |
| Final score | Physical | 0.761 | -0.034 |
| | Psychological | 0.627 | 0.055 |
| | Social relationships | 0.700 | 0.202 |
| | Environment | 0.800 | 0.197 |
| | Final score | 0.306 | 0.116 |

DISCUSSION

Respondents' characteristics

The mean age of the respondents was 71 ± 8 years. Based on the results of this study, it was found that the elderly with hypertension were mostly in the young elderly group, namely 45 people (56.96%). This has similarities with research conducted on elderly patients at the Jakarta Sukapura Islamic Hospital, it was found that the age group with hypertension was the most in the young elderly, namely 37 people (45.8%), followed by the middle elderly as many as 36 people (43.4%), and the old elderly as many as 9 people (10.8%).⁷ The high prevalence of hypertension is in line with increasing age which is caused by changes in the structure of the large blood vessels, so that the lumen narrows and the blood vessel walls become more rigid. This causes an increase in systolic blood pressure.⁸

The number of female respondents was 54 people (68.35%) more than male respondents, namely 25 people (31.65%). The results of this study are in line with research which explains that more women experience hypertension due to a decrease in the hormone estrogen when entering menopause.¹

Quality of life

The results of this study stated that most of the quality of life of the elderly was at a moderate level, namely 39 young elderly people (49.37%), 17 middle elderly people (21.52%), and 13 old elderly people (16.5%). As we get older, there will be a decrease in physiological and psychological functions. These results are in line with the results of research which states that there is a relationship between age and the quality of life of the elderly caused by changes in the aging process, both physical, mental and psychological changes. This affects the ability of the elderly in daily activities. The inhibition of the activities of the elderly will affect the quality of life of the elderly.¹⁰

Physical constitution

According to Qian's research, there are many factors that influence a person's physical constitution type.¹¹ The study stated that most of the elderly respondents had a physical constitution type of yin deficiency and blood stasis. The results of this study have similarities with the research above, namely that most of the elderly respondents have a type of physical constitution of qi deficiency, yang deficiency, and blood stasis.

Based on the results of this study, it was found that three types of physical constitution were dominant in the unbalanced type with the sick and pre-ill categories. First, the type of qi deficiency with illness category totaled 8 people (15.69%) and pre-illness amounted to 18 people (35.29%). The physical characteristics of qi deficiency

are lethargy, shortness of breath, weak/low voice, a lot of sweating, easy colds, and easy Fatigue.¹² Second, the type of yang deficiency with the category of illness was 6 people (11.76%) and pre-illness was 13 people (25.49%). The physical characteristics of yang deficiency are cold hands and feet, tend to be afraid of cold, face looks pale, likes hot food and drink, body fat, tongue has a white coating, and pulse is deep and weak.¹² Third, blood stasis with 3 sick categories people (5.88%) and pre-sick as many as 11 people (21.57%). The physical characteristics of Blood Stasis are that the skin and lips appear dark, there are eye bags, the skin feels rough, and feel pain in other parts of the body.¹² With age, the function of the kidneys weakens gradually so that blood circulation becomes not smooth. This causes the elderly to be susceptible to chronic diseases and tends to have a type of yang deficiency and blood stasis physical constitution.¹¹

Relationship between physical constitution and quality of life

The results of this study indicated that the final outcome of physical constitution and the final outcome of quality of life had no significant relationship ($p=0.306$; $r=0.116$). Based on the theory of the conceptual model of health-related quality of life, quality of life is influenced by many factors including demographic factors (gender, employment status, level of education), developmental factors (physical activity, hypertension diet adherence), psychological factors (medication adherence), biological factors as well as comorbidities, and duration of suffering from hypertension.¹³ It's just that these factors are included in the variables not examined by researchers so there is no supporting data indicating that the final result of physical constitution has no significant relationship with the end result of quality of life in elderly hypertensive.

Qi deficiency has a very weak relationship in a negative direction to the domain of social relations ($p=0.047$; $r=-0.214$) which means that if a person shows a type of qi deficiency or the lower the qi in the body, the lower one's social relations. Based on the TCMC theory, qi functions to provide energy in the body, form blood, and is responsible for metabolism and bodily functions. In addition, one of the results of the movement of qi in the body is physiological function, pathological changes in the body and human psychology.⁴ This study shows that in the domain of social relations, most of them fall into the moderate category, amounting to 51 people (64.56%). The results of this study are in line with previous studies which found that Qi deficiency significantly lowered scores on the physical, psychological, and social domains.¹⁴

Yang deficiency has a moderate positive relationship with the environmental domain ($p=0.014$; $r=0.270$) which means that if a person shows a type of Yang deficiency or the lower the yang in the body, the better the quality of life in the environmental domain. The environment is one

of the determining factors for a person's quality of life, an uncomfortable environment for the elderly will interfere with achieving environmental well-being.¹⁵ This research is in line with the results of this study which showed a low quality of life for the elderly in the environmental domain with a moderate category of 44 people (55.70%).

Static blood has a very weak relationship in a negative direction to the physical health domain ($p=0.028$; $r=-0.243$) which means that if someone shows the Stasis Blood type, the lower the physical health condition. Someone with Stasis Blood tends to have problems with the blood circulation system and decreased kidney function.¹¹ One of the diseases that can arise as a result of impaired blood circulation and kidney function is hypertension.

Respondents in this study were elderly people with hypertension, so based on this study, many types of physical constitution were found blood stasis. The research above is also in line with the results of this study which showed that in the physical health domain most of them were in the moderate category as many as 71 people (89.87%).

Qi depression has a very weak relationship in a positive direction to the environmental domain ($p=0.043$; $r=0.226$) which means that if someone shows the type of qi depression, the better the quality of life in the environmental domain. The results of previous studies stated that qi depression is a risk factor for someone experiencing depression. The greater the depression qi constitution, the higher the risk of depression. People with depression qi have the characteristic of brooding. One form of social support obtained from family and friends is emotional support. Prastika and Siyam's research stated that 47.1% of respondents received family support in the form of informational support, not emotional support.¹³ This causes the elderly to be more prone to depression and have a physical constitution of the qi depression type. The above research is in line with the results of this study which shows that the quality of life of the elderly in the psychological domain was mostly in the moderate category, totaling 67 people (84.81%) and in the environmental domain, most of them were in the moderate category, namely 44 people (55.70%).

CONCLUSION

Physical constitution and quality of life have no significant relationship in hypertensive elderly in Sendangtirto Village. However, there are types of physical constitution and quality of life domains that are interconnected, namely qi deficiency has a very weak relationship in a negative direction to the social relations domain, yang deficiency has a moderate positive relationship to the environmental domain, blood stasis has a very weak relationship to the negatively towards the

physical health domain, qi depression has a very weak relationship in a positive direction towards the environmental domain.

Recommendations

Future researchers should participate in examining confounding variables to find out other factors that can influence outside the variables studied. Data collection should be done at an effective time, such as Posyandu, mobile health center, or prolanis because many elderly people rarely seek treatment at the health center because their homes are quite far away or other factors. Data collection should not take too long because elderly respondents tend to tire more quickly, so researchers can use short and clear language during data collection.

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