Factors That Influence the Occurrence Rheumatic Heart Disease (RHD) in the Cardiology Unit, 2024

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Article Information	Abstract
	Introduction: *15.6 million people have suffered from rheumatic heart disease in all countries and this disease caused a high mortality rate of 200.00 and a high incidence of this disease from 5-14 years for men in 162 up to100.000 deaths and for women in 228 to 100.00 were dead. According to cardiology Herculano Seixas, in 2023 there were 480 patiens with rheumatic heart disease, the majority of whom were young marry have suffered from the disease at the age of >20 years, and are currently being treated at the referral hospital and the HNGV.* ***Objective:*** *Identification Factors that influence the occurrence of Rheumatic Heart Disease (RHD) in the polyclinic Cardiology, the National Hospital Guido Valadares.* ***Method:*** *In this research using the quantitative analysis method with a cross sectional approach.* ***Results and Discussion:*** *Bazed on the rezultanalyzes test statistic Sperman Rank P value 0,000 demonstrates that value is less than 0,05 means that influence between factor enviroment the occurrence of Rheumatic Heart Disease and result with correlation value r = 0,540 which located between 0,500-0,774 category to strong Correlation, and factor nutrition that is significant P value 0,000 demonstrates that value is less than 0,05 means that influence between factor nutrition the occurrence of Rheumatic Heart Disease and result with correlation value r = 0,828 which located between 0,800-0,990 category is the strongest Correlation. And factor socio economic that is significant P value 0,000 demonstrates that value is sless than 0,05 means that influence between factor socio economy the occurrence of Rheumatic Heart Disease and result with correlation value r = 0,624 which located between 0,600-0,775 category is the strong Correlation.* ***Conclusion:*** *This survey sample has a positive and significant influence between factor environment, nutrition, socio economic the occurrence of Rheumatic Heart Disease* ***Keyword: Rheumatic Heart Disease; Factor Environment; Nutrition; Socio Economic;***

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Introduction

Rheumatic Heart Disease is a health problem that occurs in communities worldwide and is the main cause of mortality and mobility related to heart disease. In almost 60% of developing countries, children, youth, and adults suffer from this disease. The prevalence of Rheumatic Heart Disease is most common amongst children aged 5 to 20 and young adults aged 25 to 39, with cardiovascular disease being the cause of death for those aged 40 and above (Pontoan, Meila, & Indriyani, 2023)

According to the World Health Organization (WHO), in 2016, approximately 15.6 million people worldwide suffer from Rheumatic Heart Disease, with a high mortality rate of 200,000 people and an incidence rate starting from the age of 5 to 14, with 162 to 100,000 men dying and 228 to 100,000 women dying (Jonathan Baan, 2016) at (Kustiyanti, 2023)

The World Heart Federation reports that Rheumatic Heart Disease is a problem that affects 33 million people in Asian countries, resulting in 95,000 deaths per year. In some American regions, the mortality rate is 1.8 per 100,000 people, while in Southeast Asia, it is 7.6   per 100,000 people (WHF, 2020).

According to Cardiology specialist Herculano Seixas dos Santos, in January 2023, 480 patients with Rheumatic Heart Disease were registered at the National Guido Valadares Hospital, most of whom were under the age of 20, receiving treatment at referral hospitals and the National Guido Valadares Hospital (Ximenes F. 2003).

According to data collected at the National Guido Valadares Hospital (HNGV) in the Medicine in 2021, a total of 21 cases of Rheumatic Heart Disease (RHD) were recorded, with 19 (90.5%) being female and 2 (9.5%) being male. In 2022, there were 42 cases of RHD recorded, with 25 (59.5%) being female and 17 (40.5%) being male. In 2023, there were a total of 63 cases of RHD recorded, with 33 (52.4%) being female and 30 (47.7%) being male. The total mobility rate for Rheumatic Heart Disease was 126 people who have suffered from the disease. (HNGV Secondary Data, 2024).

Rheumatic Heart Disease is a disease characterized by damage to the heart valves caused by the beta hemolytic streptococcus type A bacteria (Tito & Yanni, 2020). The main factor causing Rheumatic Heart Disease is the unhealthy environmental factors of socio economic conditions and inadequate nutrition, such as insufficient and non-nutritious food intake (lack of protein and vegetables) (Khadka, 2019). This change in lifestyle makes it impossible for the community to engage in active movement, consume foods high in fat, and live in an unhealthy environment, resulting in the emergence of rheumatic heart disease (Riskedas, 2018, cited in Taringan V.T., 2020).

Rheumatic Heart Disease is a serious disease that can also result in mortality if left untreated (Peters, Karthikeyan, Abrams, Muhwava, & Zɔhlke, 2020). Therefore, patients who have contracted this disease need proper treatment and control. If left untreated, serious complications may arise, such as damage to the mitral valve function, circulatory problems in the blood clot, and heart failure (Dr. Yang Sembarang, 2023).

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Patients who suffer from Rheumatic Heart Disease but do not receive proper treatment may experience relapses and even suffer from fatal consequences, despite receiving optimal treatment. This is caused by an unhealthy lifestyle. To prevent the morbidity rate from Rheumatic Heart Disease, a healthy lifestyle must be followed, including a healthy environment, a good socio-economic environment, controlling one's thoughts, and consuming adequate nutrition health (Febritina & Nurhayati, 2017)

Method

This research method is a quantitative analytical method with a cross-sectional procedure approach. The research was conducted at the Cardiology Unit of the National Hospital Guido Valadares in February 2024, with a population of patients who consulted the cardiology unit with Rheumatic Heart Disease (RHD) symptoms. The sample for this research consisted of a total of 50 people. The sampling technique used was accidental sampling. The independent variable for this research is the influencing factors (environmental factors, nutrition status, and socioeconomic factors), while the dependent variable is the occurrence of Rheumatic Heart Disease. The data collection instruments were questionnaires. Bivariate data analysis was carried out using the SPSS program to analyze Spearman rank correlation tests.

Results and Discussion
Characteristics of Respondents Based on Age
Table 1
Frequency distribution of respondents based on age in the Cardiology Unit, HNGV, year 2024

Age	Frequency(*f*)	Percentage (%)
15-30	31	62%
31-49	15	30%
50-69	4	8%
Total	**50**	**100%**

Based on the above table 1, the results indicate that the respondents from rheumatic heart disease (RHD) patients who consulted in the Cardiology Unit, HNGV, were mostly aged 15 30 with a total of 31 and its percentage (62%), and a minority aged 50 69 with a total of 4 and its percentage (8%).

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Characteristics of Frequency Based on Gender

Table 2

Frequency distribution of respondents based on gender in the Cardiology Unit, HNGV, year 2024

Gender	Frequency	Percentage (%)
Female	33	66%
Male	17	34%
Total	**50**	**100%**

Based on the above table 2, the results indicate that the respondents from rheumatic heart disease (RHD) patients who consulted in the Cardiology Unit, HNGV, were mostly female with a total of 33 and its percentage (66%), and a minority male with a total of 17 and its percentage (34%)

Characteristics of Respondents Based on Education Level

Table 3

Frequency distribution of respondents based on education level in the Cardiology Unit, HNGV, year 2024

Education Level	Frequency (*f*)	Percentage %)
Primary	7	14%
Pre-Secondary	5	10%
Secondary	15	30%
University	12	24%
Bachelor's Degree	5	10%
Master's Degree	6	12%
Total	**50**	**100%**

Based on the table above, the results show that respondents from RHD patients in the cardiology unit of HNGV, the majority have a secondary education level with a total of 15 and a percentage of 30%, while the minority have a bachelor's degree with a total of 3 and a percentage of 6%

Respondent Characteristics Based on Profession

Table 4

Distribution of frequency of respondents based on profession in the Cardiology Unit of HNGV in 2024

Profession	Frequency (*f*)	Percentage (%)
Student	22	44%
Framer	9	18%
Civil Servant	5	10%
Housewife	11	22%
Businessman	3	6%
Total	**50**	**100%**

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Based on the table above, the results show that RHD patients who consulted at the cardiology unit of HNGV, the majority are students with a total of 22 and a percentage of 44%, while the minority are businessmen with a total of 3 and a percentage of 6%.

Analise Univariate

Table 5

Distribuition frequency based on variavel independente factor envairoment, factor estate nutrition, factor sosioeconomy, in unit cardiology HNGV, 2024 (n=50)

Variable	Frequency	Percentage
Environment		
Influence high	17	34
Influence moderate	20	40
Not influence	13	26
Total	**50**	**100**
Estate Nutrition		
Influence high	38	76
Influence moderate	5	10
Not influence	7	14
Total	**50**	**100**
Sosio-Economic		
Influence high	18	36
Influence moderate	21	42
Not influence	11	22
Total	**50**	**100**

Based on Table 5 above, the results indicate that out of the total sample of 50, with regards to the independent variable of 'environmental factor', the majority show no influence with a frequency of 20 (40.0%). The independent variable of 'nutritional status factor' shows most of the high influence with a frequency of 38 (76.0%). The independent variable of 'socioeconomic factor' also shows most of no influence with a frequency of 21 (42.0%).

Bivariate Analysis

Table 6

Correlation test results between the environment factor's influence on the occurrence of rheumatic hearth disease

Correlations

			Environment	Rheumatic Heart
Spearman's rho	Environment	Correlation Coefficient	1.000	.540**
		Sig. (2-tailed)	.	.000
		N	50	50
	Rheumatic Heart	Correlation Coefficient	.540**	1.000
		Sig. (2-tailed)	.000	.
		N	**50**	**50**

**. Correlation is significant at the 0.01 level (2-tailed).

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Based on Table 6, the results of the statistical test analysis using Spearman Rank with a significant value of p=0.000 indicate that the value of 0.000 <0.05 means that the environment factor has a strong positive relationship with the occurrence of rheumatic heart disease in the Cardiology Unit, with a correlation value of r=0.540 located between the categories of strong correlation with a relationship that is positive (+)

Table 7

Correlation test results between the nutrition status factor's influence on the occurrence of rheumatic hearth disease

Correlations

			Nutrition	Rheumatic heart
Spearman's rho	Nutrition's	Correlation Coefficient	1.000	.828**
		Sig. (2-tailed)	.	.000
		N	50	50
	Rheumatic Heart	Correlation Coefficient	.828**	1.000
		Sig. (2-tailed)	.000	.
		N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Based on table 7, the results of the analysis of the Spearman Rank statistical test with its significant value of p=0.00 indicate that the value of 0.00 <0.05 meaning that the Nutrition Status factor influences the occurrence of Rheumatic Fruit Disease in the Cardiology Unit, with a correlation value of r=0.828 which is located between 0.800 0.990, categorizing it as a very strong and positive relationship.

Table 8

Shows the results of the correlation test between socio economic factors and the influence on the occurrence of Rheumatic Heart Disease

Correlations

			Sosio-economy	Rheumatic heart
Spearman's rho	Socioeconomic	Correlation Coefficient	1.000	.624**
		Sig. (2-tailed)	.	.000
	Rheumatic heart	N Correlation Coefficient Sig. (2-tailed)	50 .624** .000	50 1.000 .
		N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Based on Table 8, the analysis of the Spearman Rank statistical test with its significant p value of 0.000 shows that the value of 0.000 <0.05 means that the socio-economic factor influences the occurrence of Rheumatic Hearth disease in the Cardiology unit, and the correlation value of r = 0.624, which is located between 0.600 0.775, is classified as a strong positive relationship

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Discussion

Characteristics of Respondents Based on tables 4 above, the frequency distribution of characteristics for patients who consult in the Cardiology unit of HNGV shows that out of a total of 50 patients, the majority are aged 15 30 with a frequency of 31 (62%). Regarding gender, the majority are female with a frequency of 33 (66%), while males have a frequency of 17 (34%). In terms of education, the majority have a secondary level of education with a frequency of 15 (30%). Most respondents' professions are students, with a frequency of 22 (44%).

These results are comparable to those of the researcher Rahamawaty (2016), who found that out of a total of 68 respondents, the majority were aged 13 15 with a frequency of 23 (33%), with females having a frequency of 35 (51%) and males 33 (58%). Most respondents had a primary level of education with a frequency of 35 (51%), while their professions were mostly students with a total frequency of 68 (100%)

Analyse of the Environmental Factors that Influence the Occurrence of Rheumatic Heart Disease

Based on the analysis of the research results from the 50 respondents in the Cardiology unit of HNGV, and using Table 7, the correlation coefficient based on the Spearman Rank test showed a result of 0.540. Interpretation of the correlation coefficient value of r reveals that it falls in the category between 0.500 0.774, indicating a strong and significant relationship between environmental variables and the occurrence of the disease.

Based on the results that show that patients with rheumatic heart disease (RHD) in the cardiology unit have an environmental factor related to the occurrence of the disease because of unsafe and unhealthy environments.

Based on the research I conducted from Thursday, February 15 to February 22, 2024, with a total of 50 respondents, it was shown that more than a third of the respondents who had an influential environment suffered from RHD due to environmental influence high 17 (34,0%), influence moderate 20 (40,0%), not influence 13 (26,0%).

Compared to a previous study conducted by Rahmawaty (2016) on risk factors for recurring attacks in DR / PJR patients, it was found that the factor risk to attack again the patient DR/PJR at the science health child, faculty medicine University Hasanuddin RSUP Dr. Wahidin Sudirohusodo, Makassar. With total respondent 68 have no influence moderate.

Environment, both external and internal, had an influence and caused the development of individual or group behavior. The internal environment refers to an individual's mental processes and experiences, emotional capacity, as well as biological stress. The external environment refers to physical, chemical, or pathological factors that threaten human health (Notoatmodjo, 2016).

The researcher concluded that the environment is a factor that could delay the recovery process because of the potential for unsafe and unclean surroundings that may allow bacteria like Streptococcus to cause RHD or fever. Therefore, counselling is necessary to create a safe and healthy environment to aid patients in their recovery process.

Analyze the factors of nutritional status that influence the occurrence of Rheumatic Heart Disease

Based on the results of a research study with respondents who were patients in the Cardiology Unit of the HNGV hospital, with a total of 50 respondents based on Table 8 The correlation coefficient result based on the Spearman rank test showed a correlation with a value of 0.828. When comparing with the interpretation table for correlation coefficient values between 0.800 0.990 with a strong correlation and a significance value of $P = 0.000$ means that there is a significant influence between the nutritional status variable and the occurrence of Rheumatic Heart Disease.

The research shows that patients with RHD in the Cardiology Unit have a nutritional   factor related to the occurrence of RHD; the reason is due to non-nutritious food.

Based on the research which start at thrust day, 15 February until 22 February in 2024, with total respondent 50 indicate the majority part respondent with nutrition that influence high 38 (76,0%), influence moderate 5 (10,0%), Not influence 7 (14,0%).

Compared to previous research conducted by Rahmawaty in (2016) the nutritional status had a high influence on DR/PJR patients in the Department of Children's Health, Faculty of Medicine, Hasanuddin University Dr. Wahidin Sudirohusodo Hospital, Makassar. With total respondent 68 which nutrition with high influence 46 (67,6%).

Nutritional conditions such as low calories, protein, vitamins, iron, and others can affect people's immunity, making it easier for them to get sick, including RHD. Because the condition become a factor to influence to the youth and include for children (Hiswani, 2009).

Therefore, the researcher concluded that the nutritional status became a factor that could delay the recuperation process due to the consumption of non-nutritious or less healthy food, such as fruits and vegetables with a high level of fat. Therefore, counseling is necessary to control their food and consume healthy and nutritious meals.

Analyze the socioeconomic factors that influence the occurrence of rheumatic heart disease

Based on the analysis of research results obtained from respondents in a study conducted with patients at the Cardiology Unit, HNGV, with a total of 50 respondents it was shown that the correlation coefficient test based on the Sperman Rank test showed a result with a value of 0.624. When compared to the interpretation table of correlation

coefficients with a value of r in the category between 0.600 0.775, it showed a strong correlation with significant value of P value=0.05 and a value of P=0.000, which means that there is a significant influence between socioeconomic variables and the occurrence of rheumatic hearth disease.

Based on the results that showed patients with rheumatic hearth disease (RHD) at the cardiology unit, there is a socioeconomic factor related to the occurrence of rheumatic fruit disease, because it is caused by the condition of family members who have a lower socioeconomic condition

Based on the research that I conducted starting from Thursday, 15 to 22 February 2024, with a total of 50 respondents, it was shown that most respondents with a high nutritional influence were 18 (36.0%), with an influence of 21 (42.0%) and no influence of 11 (22.0%).

Compared to previous research conducted by Rahmawaty (2016) on risk factors for occurrence of DR/PJR patient attacks in the Pediatric Health Sciences Department, Faculty of Medicine, Hasanuddin University, Dr. Wahidin Sudirohusodo General Hospital, Makassar, with a total of 68 respondents who had a high socioeconomic influence of 37 (54.5%). Factor Socioeconomic conditions have very important role, one that, if sufficient or   good, would facilitate good health services. Economic factors are also closely related to food consumption and serving food to families. Most of the population is not adequate for their individual needs because they have small incomes and have family members.

Most of the population is not suitable for their individual needs because they have low income and many family members to provide for. The economic status can be seen from the basic cost of living. (Siti Rukman, 2011).

Therefore, it is concluded from research that socio economic factors can slow down the recovery process due to unfavorable social and economic conditions such as overpopulated and underdeveloped areas, lack of education and knowledge about treatment for sick children and young people. Therefore, advice is needed to control worries and help families with good economic conditions to assist each other.

Conclusion

From the results of this research, it is concluded that the environmental factor has a strong and significant influence, the nutritional status factor has a stronger and significant influence, and the socio-economic factor has a strong and significant influence on the occurrence of rheumatic heart disease (RHD) in the cardiology unit of the National Hospital Guido Valadares.

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