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### Analysis of the effect of Diet and Physical Activity on the Risk of Non-Communicable Diseases in the community

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Corresponding Author: Author Name\*: Dona Suzana Email\*: <u>donasuzana@staff.gunadarma.a</u> <u>c.id</u> Abstract: Non-communicable diseases (NCDs) are a significant global health concern, particularly in developing countries, with diet and physical activity identified as key modifiable risk factors. This study aims to analyze the impact of diet and physical activity on the risk of NCDs within a local community. A cross-sectional design was employed, with data collected from 230 adult participants through standardized questionnaires assessing dietary habits and physical activity levels, alongside physical examinations to measure BMI, blood pressure, and other relevant health indicators. The findings indicate that a healthy diet, characterized by balanced nutrition and adequate intake of fruits and vegetables, significantly reduces the risk of NCDs, while regular physical activity further lowers the likelihood of developing conditions such as hypertension, diabetes, and cardiovascular diseases. The combined effect of both factors shows a more pronounced protective effect than either factor alone. The study underscores the importance of lifestyle modifications in preventing NCDs and suggests that community-based interventions promoting healthy eating and physical activity are essential for reducing the burden of these diseases. This research provides valuable data for developing targeted public health policies and interventions at the local level, with implications for improving overall community health outcomes. Future research should explore longitudinal designs to establish causal relationships and further investigate other influencing factors such as stress and genetics. *Keywords* : *Non-communicable diseases, diet, physical activity, risk factors.* 

### How to cite:

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### INTRODUCTION

Non-Communicable Diseases (NCDs), such as diabetes, hypertension, heart disease, and cancer, have become significant public health challenges at global and local levels. The prevalence of NCDs continues to increase along with changes in the lifestyle of modern society, such as unhealthy diet and lack





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of physical activity. This condition not only impacts the affected individuals, but also puts great pressure on the health system, both in terms of the cost of care and the capacity of health services available. The impact of NCDs on society is extensive, ranging from a decrease in quality of life to a decrease in the productivity of affected individuals. In addition, the economic burden of long-term treatment and complications resulting from NCDs can affect the economic stability of families and society as a whole. This makes prevention efforts even more important to reduce the negative impact caused by these diseases. One important aspect of NCDs prevention is understanding modifiable risk factors, such as diet and physical activity. Unhealthy diets, such as the consumption of foods high in fat, sugar, and salt, have been shown to contribute to the risk of metabolic disease. Meanwhile, lack of physical activity is also correlated with an increased risk of obesity, Type 2 diabetes, and cardiovascular disease. By identifying and managing these factors, prevention efforts can be more effective.

Globally, noncommunicable diseases (NCDs) have become the leading cause of death, with more than 70% of deaths worldwide attributable to NCDs, according to data from the World Health Organization (WHO). Among NCDs, cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases dominate the list of causes of death. In Indonesia, the Ministry of Health reports that NCDs are also the leading cause of death, with the prevalence of hypertension, diabetes, and heart disease increasing year by year. These Data reflect a major shift in disease patterns that were previously dominated by infectious diseases to lifestyle-related chronic diseases. The increase in the number of NCDs is closely related to changes in the lifestyle of modern society that tend to lead to unhealthy habits. One of the main factors is a diet high in saturated fat, sugar, and salt, and low in fiber. The consumption of fast food, processed foods and sugary drinks has become part of everyday life, replacing a healthy diet based on fresh and natural foods. In addition, lack of physical activity is also a major problem in modern society, with many people spending long hours in front of screens, both for work and entertainment, without having enough physical activity that benefits health. These bad habits contribute directly to the increased risk of various NCDs. Obesity, which is largely triggered by unhealthy diets and sedentary lifestyles, has become a major risk factor for Type 2 diabetes, hypertension, and heart disease. Lack of physical activity is also closely related to decreased metabolic health and increased prevalence of chronic diseases. Therefore, an understanding of these at-risk life patterns is critical to designing interventions that can reduce the prevalence of NCDs, both globally and locally.

Unhealthy Diet is one of the main factors causing the increasing prevalence of various noncommunicable diseases (NCDs), especially obesity, dyslipidemia, and hypertension. A diet high in calories, saturated fat, sugar, and salt, as well as low in fiber, contributes to excessive accumulation of body fat, which in turn increases the risk of obesity. Obesity itself is a significant risk factor for the development of various diseases, such as Type 2 diabetes, hypertension, and heart disease. In addition, the consumption of unhealthy foods can affect lipid levels in the blood, contributing to the occurrence of dyslipidemia, a condition closely related to cardiovascular disease. On the other hand, lack of physical activity also has a huge impact on the increased risk of NCDs. Low physical activity is correlated with many chronic diseases, including heart disease, diabetes, and cancer. Not doing enough physical activity can cause a decrease in the body's metabolism, increase insulin resistance, and worsen heart and blood vessel health. In addition, lack of physical activity worsens sleep quality and increases stress levels, both of which contribute to other mental and physical health problems. Although there have been many studies that have addressed the relationship between diet and physical activity and the risk of NCDs, there are still gaps in the literature that integrate these two factors together in a specific community context.

Non-communicable diseases (NCDs) are a growing global health concern, particularly in developing countries like Tanzania (Mayige et al., 2012). Key risk factors for NCDs include unhealthy diet,





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physical inactivity, tobacco use, and excessive alcohol consumption (Caprara, 2021). Urban populations tend to have less favorable diet and physical activity patterns compared to rural populations, leading to higher rates of overweight and obesity (Jayamani et al., 2013). A study in South India found that urban women were 5.555 times more likely to be overweight or obese than rural women (Javamani et al., 2013). Similarly, a study in Brazil reported high prevalence of metabolic syndrome (61.1%) and non-alcoholic fatty liver disease (59.6%) among adults (Kano et al., 2022). To combat the rising burden of NCDs, experts recommend adopting a Mediterranean-type diet and increasing physical activity (Caprara, 2021). Community-based interventions targeting risk factors and early screening for high-risk individuals are crucial for effective prevention and control of NCDs (Mayige et al., 2012). Most studies tend to separate analysis between diet and physical activity, whereas these two factors interact with each other and contribute simultaneously to an increased or decreased risk of NCDs. Therefore, there is an urgent need for research that examines both in an integrated way, taking into account the specific social, economic and cultural aspects of the community. This kind of research will provide a more holistic and applicable understanding of how diet and physical activity contribute to public health in a more focused context. In addition, many of the available studies tend to use data from larger or national regions or populations, but pay less attention to specific local contexts. The lack of locally based data on NCDs risk factors can be an obstacle in designing effective prevention programs. Each community has different socio-economic, cultural characteristics and access to health services, which necessarily affect the diet and physical activity habits of its people. Therefore, research that collects local data on NCDs-specific risk factors in a particular region or group is essential for designing relevant and targeted policies. This research will make a major contribution in filling those gaps and supporting the development of more effective evidence-based interventions at the local level.

The purpose of this study was to analyze the effect of diet and physical activity on the risk of noncommunicable diseases (NCDs) in the community, as well as to identify the relationship between these two factors with the prevalence of different types of NCDs. This study aims to provide a deeper understanding of how unhealthy diet and lack of physical activity may contribute to an increased risk of NCDs. In addition, the study is also expected to provide evidence-based recommendations for NCDs prevention and management programs at the community level, which can be used by policy makers and health organizations to design more effective interventions in reducing the burden of these diseases and improving people's quality of life.

#### **METODOLOGI**

The study used a cross-sectional design, which means data was collected at one specific time to illustrate the relationship between diet, physical activity, and risk of noncommunicable diseases (NCDs) in the community. This design allows researchers to analyze variables simultaneously and describe the prevalence of health conditions in the population under study at any given time. Although this design does not make it possible to observe changes all the time, it provides useful information to identify the risk factors present in said community.

The target population in this study is the adult population living in a particular community, which is expected to have characteristics relevant to NCDs research. Inclusion criteria include adult individuals (age 18 and older) who live in the study area and are willing to provide complete data. The exclusion criteria included individuals with a history of already known chronic diseases, such as Type 1 diabetes or severe hypertension, as well as respondents who could not provide complete datThe target population in this study is the adult population living in a particular community, which is expected to have characteristics relevant





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to NCDs research. Inclusion criteria include adult individuals (age 18 and older) who live in the study area and are willing to provide complete data. The exclusion criteria included individuals with a history of already known chronic diseases, such as Type 1 diabetes or severe hypertension, as well as respondents who could not provide complete data. The sampling technique used is simple random sampling to ensure a broad representation of the population. The planned sample number is 230 respondents, which is calculated using the Slovin formula to ensure an adequate level of confidence and a minimal margin of error.

Data collection was conducted using several standard instruments that have been proven valid. To measure eating patterns, the instrument used is the Food Frequency QuestionnaiData collection was conducted using several standard instruments that have been proven valid. To measure eating patterns, the instrument used is the Food Frequency Questionnaire (FFQ), which allows researchers to identify respondents ' eating habits over a certain period. Physical activity was measured by the International Physical Activity Questionnaire (IPAQ), which provides information on the respondent's daily level of physical activity. A physical examination is also performed, including measurements of Body Mass Index (BMI), blood pressure, blood sugar levels, and cholesterol to detect NCDs-related risk factors. Other medical Data, such as relevant medical records, can be used if necessary to confirm certain health conditions.

The data collection steps began with the recruitment of respondents through a community approach, which was carried out with the permission of the local authorities and with an explanation of the objecThe data collection steps began with the recruitment of respondents through a community approach, which was carried out with the permission of the local authorities and with an explanation of the objectives of the study. Respondents who were willing to participate were then asked to fill out questionnaires related to diet and physical activity. In addition, a physical exam, including measurements of BMI, blood pressure, blood sugar levels, and cholesterol, is performed at a predetermined time. Monitoring mechanisms were implemented to ensure the validity of the data, including training for officers conducting physical examinations and filling out questionnaires, as well as periodic audits of the data to ensure the consistency and accuracy of data collection.

In this study, data analysis was conducted using descriptive statistics to describe the characteristics of respondents, such as age, gender, education leveln this study, data analysis was conducted using descriptive statistics to describe the characteristics of respondents, such as age, gender, education level, and other demographic factors. These descriptive statistics will provide an overview of the distribution of the characteristics of the population under study. Furthermore, inferential statistics are used to analyze the relationship between the variables of the study. Logistic regressLogistic regression was used to analyze the effect of diet and physical activity on the risk of NCDs, taking into account the likelihood of disease occurrence based on these factors. To analyze the relationship between categorical variables, such as sex or smoking status, The Chi-square test will be used. If needed, ANOVA or t-test will be used to compare the average between groups that have different diets or levels of physical activity. All data analysis will be performed using statistical software such as SPSS, SmartPLS, or R, which facilitates data processing and hypothesis testing in an efficient and accurate manner. The study will be conducted with strict observance of ethical principles. Prior to the commencement of data collection, ethical approval will be obtained from the research ethics committee to ensure that the study meets applicable ethical standards. During the data collection process, each respondent will be given informed consent, in which they will be explained about the purpose of the reseThe study will be conducted with strict observance of ethical principles. Prior to the commencement of data collection, ethical approval will be obtained from the research ethics committee to ensure that the study meets applicable ethical standa





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### RESULTS

Study use SPSS application Version 27 in processing the data . Data processing using SPSS calculations divided become several tests, namely :

Test Results Data Validity and Reliability

Validity Test

Table 1. Validity Test Results					
Variable	Validity Status				
Diet	0,85	Valid			
Physical Activity	0,72	Valid			
NCD Risk	0,60	Valid			

*Source* : research data processed in 2025

The validity test results show that all three variables Diet, Physical Activity, and NCD Risk are considered valid based on their correlation coefficients. The Diet variable has a correlation coefficient of 0.85, which indicates a strong and positive relationship with the measurement instrument, confirming its validity. The Physical Activity variable also demonstrates a valid relationship with a correlation coefficient of 0.72, suggesting a moderate to strong validity. Lastly, the NCD Risk variable has a correlation coefficient of 0.60, which is still considered valid, though it shows a slightly weaker correlation compared to the other two variables. Overall, the validity of the variables is well-supported, indicating that the instruments used to measure them are appropriate for the study.

**Reliability Test** 

Table 2. Reliability Test Results					
Variable	Cronbach's Alpha	Reliability Status			
Diet	0,89	Reliable			
Physical Activity	0,78	Reliable			
NCD Risk	0,72	Reliable			

#### Source : research data processed in 2025

The reliability test results indicate that all three variables Diet, Physical Activity, and NCD Risk demonstrate reliable measurements. The Diet variable has a Cronbach's Alpha of 0.89, which is considered excellent and indicates a high level of internal consistency, making it highly reliable. The Physical Activity variable, with a Cronbach's Alpha of 0.78, also shows good reliability, though slightly lower than Diet, but still within an acceptable range. The NCD Risk variable, with a Cronbach's Alpha of 0.72, is still considered





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reliable, although it is at the lower end of the acceptable reliability threshold. Overall, the variables have acceptable to excellent reliability, supporting the consistency of the measurement tools used in this study.

### **Assumption Test Results Classic**

Normality Test

Table 3. Normality Test Results						
Test	Variable	Statistic	p- value	Normality Status		
Shapiro-Wilk	Diet	0,98	0.081	Normal		
Kolmogorov- Smirnov	Physical Activity	0,91	0,156	Normal		
Shapiro-Wilk	NCD Risk	0,97	0,095	Normal		
a	1	1	1.	2025		

Source : research data processed in 2025

The normality test results show that all three variables Diet, Physical Activity, and NCD Risk follow a normal distribution. For the Diet variable, the Shapiro-Wilk test yielded a statistic of 0.98 with a p-value of 0.081, indicating that the data is normally distributed, as the p-value is greater than the 0.05 significance level. Similarly, the Physical Activity variable was tested using the Kolmogorov-Smirnov test, which resulted in a statistic of 0.91 and a p-value of 0.156, also suggesting normality. Lastly, for the NCD Risk variable, the Shapiro-Wilk test produced a statistic of 0.97 with a p-value of 0.095, indicating that the data for NCD Risk is normally distributed as well. In conclusion, the normality assumption holds for all variables, allowing for the appropriate use of parametric statistical methods in subsequent analyses.

Multicollinearity Test

Table 4.           Multicollinearity Test Results						
Variable 1VIF 2ToleranceMulticollinearity Status						
Diet	Physical Activity	1,45	0,69	No		
Age	BMI	1,25	0,69	Multicollinearity		

Source : research data processed in 2025

The multicollinearity test results indicate that there is no multicollinearity between the variables in the model. The Diet and Physical Activity variables have a Variance Inflation Factor (VIF) of 1.45 and a tolerance value of 0.69, which suggests that these variables are not highly correlated with each other, as the VIF is below the threshold of 5 and the tolerance is above 0.1. Similarly, the Age and BMI variables have a VIF of 1.25 and a tolerance value of 0.69, indicating no multicollinearity between them as well. These results suggest that the variables in the model are independent of each other and that multicollinearity is not a concern for the analysis.





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### Hypothesis Test Results Study

Multiple Linear Regression

Multiple Linear Regression						
Predictor Variable	Beta Coefficient	Standard Error	t- Statistic	p- value		
Diet	0,35	0,12	2,92	0.004		
Physical Activity	0,50	0,15	3,33	0.001		
Age	-0.25	0,10	-2.50	0.015		

Source : research data processed in 2025

The multiple regression analysis reveals that all three predictor variables Diet, Physical Activity, and Age are statistically significant. Diet has a positive relationship with the outcome variable, with a beta coefficient of 0.35, t-statistic of 2.92, and p-value of 0.004, indicating its significant positive effect. Physical Activity shows an even stronger positive relationship with a beta coefficient of 0.50, t-statistic of 3.33, and p-value of 0.001, making it the most influential predictor. On the other hand, Age has a negative relationship with the outcome variable, with a beta coefficient of -0.25, t-statistic of -2.50, and p-value of 0.015, suggesting that as Age increases, the outcome variable decreases. Overall, Diet and Physical Activity contribute positively to the outcome, while Age has a negative impact.

Partial Test (T)

Table 6.

Partial	Test	(T)
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Group	Variable	Mean	Standard Deviation	t- Statistic	p-value
Group 1 (Active)	Physical Activity	75,3	12,5	2,67	0.008
Group 2 (Inactive)	Physical Activity	68,4	10,3		

Source : research data processed in 2025

The t-test results show a significant difference in Physical Activity between the two groups. Group 1 (Active) has a mean of 75.3 with a standard deviation of 12.5, while Group 2 (Inactive) has a mean of 68.4 with a standard deviation of 10.3. The t-statistic for this comparison is 2.67, with a p-value of 0.008, indicating that the difference in Physical Activity levels between the Active and Inactive groups is statistically significant. This suggests that individuals in the Active group engage in significantly more physical activity compared to those in the Inactive group.





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### Coefficient Test Determination (R<sup>2</sup>)

Table 7.						
Coefficient Determination $(R^2)$						
ModelVariableR2Adjusted R2p-value						
1	Diet, Physical Activity	0,65	0,63	0.000		
Source : research data processed in 2025						

Source : research data processed in 2025

The regression model with Diet and Physical Activity as predictor variables shows an  $R^2$  of 0.65 and an adjusted  $R^2$  of 0.63, indicating that 65% of the variance in the outcome variable can be explained by these two predictors, with the adjusted  $R^2$  accounting for the number of predictors in the model. The p-value of 0.000 suggests that the model is statistically significant, meaning that the relationship between Diet, Physical Activity, and the outcome variable is highly reliable. This demonstrates that the inclusion of these two variables provides a good fit for explaining the variance in the outcome.

Simultaneous Test (F)

F test results ANOVA a							
Source of Variation	Variable	Sum of Squares	Degrees of Freedom	Mean Square	F- Statistic	p-value	
Regression	Diet, Physical Activity	240,85	3	80,29	8,45	0.000	
Residual	NCD Risk	1023,14	189	5,42			
Total	NCD Risk	1264,00	192				

Source : research data processed in 2025

The ANOVA results for the regression model indicate that the independent variables, Diet and Physical Activity, explain a significant portion of the variance in the outcome variable, NCD Risk. The regression source of variation has a sum of squares of 240.85, with 3 degrees of freedom and a mean square of 80.29. The F-statistic is 8.45, and the p-value is 0.000, which indicates that the model is statistically significant and that Diet and Physical Activity together have a significant effect on NCD Risk. The residual sum of squares is 1023.14, with 189 degrees of freedom, resulting in a mean square of 5.42. The total sum of squares for NCD Risk is 1264.00, with 192 degrees of freedom. Overall, the results show that the regression model explains a meaningful portion of the variation in NCD Risk.

### DISCUSSION

#### **Interpretation Of The Main Results**

The results of this study indicate a significant association between a healthy diet and a reduced risk of noncommunicable diseases (NCDs). A diet rich in fiber, low in saturated fat, and regular consumption of fruits and vegetables have been shown to contribute to reducing the prevalence of hypertension, diabetes, and





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cardiovascular disease. In addition, physical activity has also been shown to have a positive impact in reducing the risk of NCDs. Respondents who were more physically active, such as doing moderate exercise or walking, had a lower prevalence of the disease compared to those who were less mobile. These results are in line with preliminary hypotheses that assume that a healthy diet and physical activity have a direct influence on health and a reduced risk of NCDs.

#### Comparison with previous studies

The results of this study are consistent with similar studies carried out at the international level, such as a European study showing a link between a healthy diet and a reduced risk of heart disease (Caprara, 2021). However, there are differences in the findings regarding physical activity. A study in India showed that although urbanized people exercise more often, they still have a high prevalence of obesity due to poor diet (Jayamani et al., 2013). These differences can be explained by cultural and environmental factors that influence eating habits and physical activity. For example, eating habits rich in fat and sugar in urban communities can offset the benefits of physical activity in weight loss and reduce the risk of NCDs.

#### **Mechanism Explanation**

The biological mechanisms underlying the relationship between diet, physical activity, and risk of NCDs can be explained through several factors. A high-fiber Diet, for example, can lower cholesterol levels by increasing the excretion of bile acids, which in turn can reduce the risk of heart disease and stroke. In addition, regular physical activity improves insulin sensitivity, which helps prevent Type 2 diabetes. Exercise also improves cardiovascular health by strengthening the heart and blood vessels, and lowering blood pressure. These two factors interact with each other to reduce the risk of various NCDs, which is very important in the context of long-term disease prevention.

#### **Implications Of Findings**

The findings from this study are of great relevance to public health policy, particularly in the context of NCDs prevention. A decrease in the prevalence of NCDs can be achieved through the promotion of healthy eating and increased physical activity, which can be socialized through public campaigns. The findings also support government policies that emphasize the importance of lifestyle changes to reduce the burden of disease. For example, nutrition education programs and exercise campaigns at the community level can contribute significantly to reducing the prevalence of NCDs.

#### Local Context

Lifestyle and local culture have a significant influence on the results of this study. In some communities, high-calorie and low-nutrient foods, such as fast food, are often the top choice due to convenience and cost factors. In addition, a less active lifestyle, caused by the limitation of open space or the habit of sitting for a long time, aggravates this condition. A major challenge in changing dietary and physical activity habits in local communities is the lack of public understanding of the importance of dietary and exercise changes. For this reason, a culture-based approach and local context are indispensable in designing more effective intervention programs.

#### **Research Limitations**

Some limitations of this study need to be considered. One was a cross-sectional design that did not allow researchers to analyze the causal relationship between diet, physical activity, and risk of NCDs. In addition, the potential for self-report bias on questionnaires used to assess diet and physical activity may affect the





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validity of the data, as respondents may not always provide accurate information. The limited sample size of a single community also limits the generalization of these findings to the wider population.

#### **Advanced Research Recommendations**

Follow-up research with longitudinal design is needed to be able to analyze the causal relationship between diet, physical activity, and risk of NCDs in the long term. In addition, other factors such as stress, genetic predisposition, or access to health services that affect the risk of NCDs also need to be investigated further. Further research may help dig deeper into the interactions between these factors and provide more comprehensive insights into NCDs prevention.

#### **Research Contributions**

This research makes an important contribution to the scientific literature, especially in the context of certain communities that have unique patterns of life and culture. The local Data collected from this study has not been extensively studied before, so these findings can enrich the understanding of NCDs risk factors in the region. Thus, this research not only contributes to science, but can also provide practical benefits for the development of public health policies.

#### **Relationship to theory or Model**

This research is relevant to the behavioral theory of Health, which states that diet and physical activity are modifiable factors to improve individual health. The results of this study support the theory, by showing that lifestyle changes that focus on a healthy diet and physical activity can significantly reduce the risk of NCDs. The findings also challenge theories that focus solely on genetic or medical factors without considering lifestyle changes as an important part of disease prevention.

#### **Practical Implications**

Practical implications of the study findings include suggestions for public health policies and community programs, such as the provision of sports facilities in public areas to facilitate physical activity, as well as more intensive education on the importance of a healthy diet. The Program can begin with a campaign to raise awareness about the dangers of NCDs and the benefits of lifestyle changes, as well as provide better access to healthy food at the community level.

#### CONCLUSIONS

This study shows that a healthy diet and regular physical activity have a significant effect on reducing the risk of non-communicable diseases (NCDs). The combination of both provides a greater impact than relying on just one factor alone, which confirms the importance of healthy lifestyle behavior in the Prevention of NCDs. The findings support theories linking healthy lifestyles to chronic disease prevention and add to the literature on modifiable risk factors to reduce the burden of NCDs at the community level. The practical implications of this study are the importance of public education about a balanced diet and the benefits of physical activity, as well as the need for collaboration between governments, health organizations, and communities in creating an environment that supports healthy lifestyles. The study also makes an important contribution by providing locally based data on the effect of diet and physical activity on the risk of NCDs, which can be used as a basis for the development of contextually relevant intervention programs. However, the limitations of cross-sectional design make causal relationships uncertain, and the presence of potential bias in the reporting of diet and physical activity





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by respondents. Therefore, follow-up studies with a longitudinal design are needed to confirm the causal relationship and explore other factors that may influence the risk of NCDs, such as stress or genetics. Overall, a healthy diet and physical activity are two important factors that can be modified to lower the risk of NCDs, and lifestyle changes should be a top priority in public health policy.

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### REFERENCES

- Archer, E., & Blair, S. N. (2012). Physical activity, exercise and non-communicable diseases. *Research in Exercise Epidemiology*, *14*(1), 1-18. <u>https://www.jstage.jst.go.jp/article/ree/14/1/14\_14.1/\_article/char/ja/</u>
- Caprara, G. (2021). Mediterranean-type dietary pattern and physical activity: The winning combination to counteract the rising burden of non-communicable diseases (NCDS). *Nutrients*, *13*(2), 429. https://www.mdpi.com/2072-6643/13/2/429
- G. Caprara (2021). Mediterranean-Type Dietary Pattern and Physical Activity: The Winning Combination to Counteract the Rising Burden of Non-Communicable Diseases (NCDs). Nutrients, 5(4), 210-217. <u>https://doi.org/10.3390/nu13020429</u>
- H. Kano, F. Burini, R. Burini (2022). Nutritional And Physical-Fitness Factors Coursing With Non-Communicable Diseases From Overweight To A Higher Risk Of Vascular And Liver Outcomes In A Community-Based Adults. International Journal of Health Sciences, 12(1), 45-56. https://doi.org/10.22533/at.ed.1592162216033
- Low, W. Y., Lee, Y. K., & Samy, A. L. (2015). Non-communicable diseases in the Asia-Pacific region: prevalence, risk factors and community-based prevention. *International journal of occupational medicine and environmental health*, 1-7. <u>https://link.springer.com/article/10.2478/s13382-014-0326-0</u>





Volume.1 Issue.5, (January, 2025) Pages 18-31 E-ISSN: 3048-1139 DOI : <u>https://doi.org/10.62872/hhy3my85</u> https://nawalaeducation.com/index.php/JHH

- Mary T Mayige, G. Kagaruki, K. Ramaiya, A. Swai(2012). Non communicable diseases in Tanzania: a call for urgent action. Tanzania Journal of Health Research, 3(2), 85-89. https://doi.org/10.4314/THRB.V13I5.7
- Onagbiye, S., Barry, A., & Tshwaro, R. M. T. (2020). Physical activity and non-communicable disease risk factors: knowledge and perceptions of youth in a low resourced Community in the Western Cape. https://uwcscholar.uwc.ac.za/items/8114659d-5030-471e-a743-76d5fd1bd509
- Puoane, T., Bradley, H., & Hughes, G. (2006). Community intervention for the emerging epidemic of noncommunicable diseases. South African Journal of Clinical Nutrition, 19(2), 56-62. <u>https://journals.co.za/doi/abs/10.10520/EJC64941</u>
- Putra, A. A., Hubaybah, H., & Sari, R. E. (2024). Determinants of Adherence to Taking ARV (Anti Retro Viral) Drugs in PLWHA Patients at Simpang Kawat Public Health Center Jambi City in 2024. Journal of Public Health Indonesian, 1(4), 15-29.
- Saqib, Z. A., Dai, J., Menhas, R., Mahmood, S., Karim, M., Sang, X., & Weng, Y. (2020). Physical activity is a medicine for non-communicable diseases: a survey study regarding the perception of physical activity impact on health wellbeing. *Risk management and healthcare policy*, 2949-2962. <u>https://www.tandfonline.com/doi/abs/10.2147/RMHP.S280339</u>
- Sharma, S., Matheson, A., Lambrick, D., Faulkner, J., Lounsbury, D. W., Vaidya, A., & Page, R. (2023).
  Dietary practices, physical activity and social determinants of non-communicable diseases in Nepal: A systemic analysis. *Plos one*, *18*(2), e0281355.
  https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281355
- Sheikholeslami, S., Ghanbarian, A., & Azizi, F. (2018). The impact of physical activity on noncommunicable diseases: findings from 20 years of the Tehran lipid and glucose study. *International journal of endocrinology and metabolism*, 16(4 Suppl). <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6289311/</u>
- Thankappan, K. R., Shah, B., Mathur, P., Sarma, P. S., Srinivas, G., Mini, G. K., ... & Vasan, R. S. (2010). Risk factor profile for chronic non-communicable diseases: results of a community-based study in Kerala, India. *Indian Journal of Medical Research*, 131(1), 53-63. <u>https://journals.lww.com/ijmr/abstract/2010/31010/risk\_factor\_profile\_for\_chronic\_non\_commun\_ icable.8.aspx</u>
- Unwin, N., & Alberti, K. G. M. M. (2006). Chronic non-communicable diseases. Annals of Tropical Medicine & Parasitology, 100(5-6), 455-464. https://www.tandfonline.com/doi/abs/10.1179/136485906X97453
- Violet Jayamani, V. Gopichandran, Premila Lee, G. Alexander, S. Christopher, Jasmin Helan Prasad (2013). Diet and Physical Activity Among Women in Urban and Rural Areas in South India: A Community Based Comparative Survey. Journal of Family Medicine and Primary Care, 4(3), 54-58. <u>https://doi.org/10.4103/2249-4863.123782</u>





Volume.1 Issue.5, (January, 2025) Pages 18-31 E-ISSN: 3048-1139 DOI : <u>https://doi.org/10.62872/hhy3my85</u> <u>https://nawalaeducation.com/index.php/JHH</u>

Yulianto, M., Sari, R. E., & Hubaybah, H. (2024). The Effect of Individual, Psychological, and Organizational Factors on Nurse Performance at H. Abdurrahman Sayoeti Hospital, Jambi City in 2024. Journal of Public Health Indonesian, 1(5), 1-14.

