



The risk factors of hypertension in children at Private Middle School IT Jannatul Firdaus in coastal area

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Abstrak

Hipertensi merupakan masalah kesehatan yang kini tidak hanya dialami orang dewasa, tetapi juga anak-anak dan remaja. Prevalensi hipertensi pada anak terus meningkat secara global, termasuk di wilayah pesisir yang memiliki tantangan khusus dalam hal akses kesehatan, edukasi, dan pola hidup. Penelitian ini bertujuan untuk mengetahui faktor-faktor yang berhubungan dengan risiko hipertensi pada siswa kelas 7 di SMP Swasta IT Jannatul Firdaus, Desa Perlis. Penelitian ini menggunakan desain kualitatif deskriptif dengan pendekatan studi kasus. Teknik pengambilan data dilakukan melalui wawancara mendalam terhadap siswa, guru, dan kepala sekolah, serta observasi langsung di lingkungan sekolah. Instrumen yang digunakan meliputi pedoman wawancara dan catatan observasi. Data dianalisis menggunakan metode analisis tematik. Hasil penelitian menunjukkan bahwa sebagian besar siswa memiliki kebiasaan makan tinggi garam, tidak sarapan secara teratur, dan kurang melakukan aktivitas fisik. Sekolah belum memiliki program kesehatan yang spesifik untuk deteksi dini hipertensi atau edukasi gizi. Selain itu, kondisi sosial ekonomi keluarga yang rendah turut memengaruhi pemilihan makanan dan gaya hidup siswa. Simpulan dari penelitian ini adalah bahwa pola makan tidak sehat, rendahnya aktivitas fisik, kurangnya edukasi kesehatan, serta kondisi sosial ekonomi keluarga merupakan faktor signifikan yang memengaruhi risiko hipertensi pada anak. Intervensi kolaboratif antara sekolah, keluarga, dan masyarakat diperlukan untuk membentuk lingkungan yang mendukung kebiasaan hidup sehat sejak dini. **Kata Kunci:** Hipertensi anak; Faktor risiko; Pola hidup; Pesisir; Sekolah.

Abstract

Hypertension is a health issue that not only affects adults but also children and adolescents. The prevalence of hypertension in children continues to rise globally, including in coastal areas that face specific challenges in terms of healthcare access, education, and lifestyle. This study aims to identify the factors associated with the risk of hypertension among 7th-grade students at SMP Swasta IT Jannatul Firdaus, Perlis Village. The study used a descriptive qualitative design with a case study approach. Data were collected through in-depth interviews with students, teachers, and the school principal, as well as direct observation in the school environment. The instruments used included interview guidelines and observation notes. Data were analyzed using thematic analysis. The results showed that most students had habits of consuming high-salt foods, skipping breakfast regularly, and engaging in minimal physical activity. The school did not yet have specific health programs for early hypertension detection or nutrition education. Additionally, the low socioeconomic status of families influenced students' food choices and lifestyle. The conclusion of this study is that an unhealthy diet, lack of physical activity, insufficient health education, and poor family socioeconomic conditions are significant factors contributing to the risk of hypertension in children. Collaborative intervention among schools, families, and communities is necessary to create an environment that supports healthy living habits from an early age.

Keywords: *Childhood hypertension; Risk factors; Lifestyle; Coastal; School.*

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Introduction

Hypertension or high blood pressure is one of the non-communicable diseases that is increasingly found in young age groups, including children and adolescents. This condition is characterized by increased blood pressure above normal limits and can cause serious complications such as heart disease, stroke, and kidney failure if not treated early (Sinha et al., 2021). So far, hypertension has been more often associated with adults and the elderly, but in recent years, global data has shown an increase in cases of hypertension in school-age children (Mahmud & Sari, 2022). This condition is a serious concern because hypertension in children usually does not show clear symptoms and is often only detected when complications have occurred. This shows the importance of early detection and prevention efforts from an early age as a form of protection for children's health in the future. Many factors contribute to the emergence of hypertension in children, ranging from unhealthy diets, lack of physical activity, to psychosocial conditions such as stress due to academic pressure or family environment (Wijaya et al., 2021). Consumption of fast food, high-salt foods, and the habit of skipping breakfast are common habits in school-age children which indirectly increase the risk of high blood pressure (Pradita & Lestari, 2020).

A sedentary lifestyle, namely the habit of not moving enough and spending more time sitting or playing with gadgets, is also a trigger for hypertension at a young age. In addition to individual factors, the child's environment also plays an important role in forming healthy or unhealthy lifestyle habits. Unfortunately, in many schools, especially in remote and coastal areas, education about health and a healthy lifestyle is still very limited (Hasibuan et al., 2022). Coastal areas are one of the areas with high vulnerability to public health problems, including hypertension in children. Children who live in coastal areas often face limitations in terms of access to health services, minimal nutritional education, and low socio-economic conditions (Ardiansyah et al., 2021).

In some areas, high-salt foods such as salted fish and seafood are consumed daily due to cultural reasons or economic limitations. This diet, if consumed continuously without adequate

nutritional supervision, can slowly increase blood pressure from childhood (Putri & Wibowo, 2019). The limited sports facilities in Marpaung, Iswar Saputra Nasution, Dimas Septiadi)

schools and safe play environments also exacerbate the inactive lifestyle of children in this area. This shows that the risk of hypertension in children in coastal areas is a complex problem that is not only related to personal habits, but also influenced by the social, cultural, and economic conditions that surround them.

One educational institution that reflects this reality is SMP Swasta IT Jannatul Firdaus which is located in Perlis Village, a coastal area with community characteristics that still face various challenges in the fields of health and education. Based on initial observations, this school does not yet have a structured and educational health program in preventing noncommunicable diseases such as hypertension. In addition, student habits such as often buying unhealthy snacks, rarely having breakfast, and minimal sports activities are indications of a risky lifestyle (Mahmud & Sari, 2022). The lack of involvement of families and the surrounding environment in educating children about the importance of maintaining health also adds to the complexity of this problem. Based on the background and problems, this study aims to identify and analyze risk factors associated with hypertension in junior high school students at SMP Swasta IT Jannatul Firdaus, Perlis Village. This study will explore how diet, physical activity, health education, and family socioeconomic conditions affect the potential for hypertension in school children in coastal areas. It is hoped that the results of this study can be the basis for designing contextual intervention programs, as well as a reference for schools, families, and communities in creating an environment that supports a healthy lifestyle from an early age (Ardiansyah et al., 2021; Mahmud & Sari, 2022).

Method

This study used a descriptive qualitative approach with a case study method. This approach was chosen to gain a deep

understanding of the risk factors for hypertension in school-age children in a real-life context, especially in coastal areas. Case studies are considered appropriate because they allow researchers

to explore various social, cultural, and environmental aspects that influence the behavior and health conditions of children in a particular location (Yin, 2009).

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This study was conducted in May 2025 at SMP Swasta IT Jannatul Firdaus located in Perlis Village, a coastal area with unique community characteristics in terms of socioeconomic, dietary patterns, and access to health services. This location was chosen because it was considered to represent the conditions of children in coastal areas who have the potential to be at risk of hypertension due to various limitations.

The population in this study were all grade VII students at SMP Swasta IT Jannatul Firdaus. The research sample was taken purposively, namely students who were the targets of health education activities carried out by students of the Public Health Science study program. A total of 20 students were selected as main informants based on criteria such as involvement in education activities and willingness to be interviewed. In addition to students, teachers, principals, and parents were also involved as supporting informants to enrich the data through a broader perspective.

The sampling method used was purposive sampling, which is the deliberate selection of subjects based on certain considerations that are in accordance with the objectives of the study. Inclusion criteria include students who are willing to participate, are active in school activities, and have diverse social backgrounds. This method was chosen so that researchers can explore data more specifically and relevantly according to the context of the case being studied.

The research variables in this study are not quantitative, but are focused on the main themes related to the risk of hypertension, such as diet (habits of consuming high-salt foods, breakfast habits), physical activity (frequency of exercise, duration of gadget use), health education (information received by students regarding hypertension), and family socio-economic conditions (income, parenting patterns, and access to healthy food).

Data collection techniques were carried out through in-depth interviews and direct

observation. Interviews were conducted in a semistructured manner using a previously prepared interview guide. Information was collected from students, teachers, principals, and several parents of students to obtain a comprehensive view of their lifestyle and environment. Observations were made on students' daily activities at school, including snacking habits, break times, and physical activities. In addition, documentation such as student health records and counseling results were also used as supporting data. The data obtained were analyzed using the thematic analysis method. The analysis process was carried out by identifying the main themes that emerged from the results of interviews and observations, then grouped and interpreted to find patterns of relationships between risk factors.

The analysis steps include data transcription, coding, grouping themes, and drawing conclusions. This technique allows researchers to interpret data in depth and contextually, and produce a comprehensive understanding of the problems being studied (Hasibuan et al., 2022).

Result and Discussion

This study involved 20 seventh grade students consisting of 8 male students and 12 female students with an age range of 13 to 15 years. The activity was carried out on May 3, 2025 at SMP Swasta IT Jannatul Firdaus, Perlis District, Langkat Regency, North Sumatra Province.

Before the counseling began, students were given a pre-test in the form of 10 multiplechoice questions to measure their initial knowledge of hypertension. After the counseling session and interactive discussion, students were again given a post-test with the same questions to measure their increased understanding.

1. Sub-Section (Pre-Test Results) Based on the pre-test results, most students did not understand the risk factors for hypertension. Only 18.5% of the total questions given to 20 students were correct. 2. Sub Sub Section (Post-Test Results) After the counseling, including discussion

sessions and interactive quizzes, the posttest results showed a significant increase in student understanding. The percentage of correct answers increased to an average of 68.5%.

3. Comparison of Pre-Test and Post-Test Results (%)

In general, there was a significant increase in each question after the counseling. In the pre-test, the percentage of students' correct answers was still low, with the lowest scores on questions 3 and 6 at 10%, and an overall average of only 18.5%. However,

after the counseling, the percentage of correct answers increased drastically, with the highest score on question 9 at 90%, and the average increased to 68.5%.

The most striking increase was seen in questions 3 (the relationship between obesity and hypertension) and 9 (the importance of blood pressure screening), which were previously only answered correctly by a few students. This indicates that the material presented in the counseling succeeded in increasing students' understanding, especially regarding risk factors that they previously did not know much about.

This graph strengthens the finding that health counseling conducted using interactive methods can significantly increase students' knowledge, especially in understanding the risks and prevention of hypertension from an early age.

The results of this study indicate that health education regarding risk factors for hypertension in children has a significant positive impact on increasing students' knowledge. Before the education, the average student understanding of hypertension was only 18.5%, but after the interactive educational activities were carried out, understanding increased to 68.5%. This difference reflects the success of the education method used, including a combination of presentations, discussions, questions and answers, and interactive quizzes that were able to attract attention and maintain students' focus during the learning process.

This increase in knowledge is in line with the findings of Hasibuan et al. (2022), which stated that participatory-based education methods are more effective in increasing participants' understanding compared to oneway lecture methods. In this context, the delivery of material is adjusted to the characteristics of junior high school students who tend to lose focus easily, so that a communicative approach with incentives in the form of prizes has proven to be the right strategy.

This study also confirms the results of previous studies which show that children in coastal areas tend to have low levels of knowledge about hypertension, due to limited access to information and minimal health education programs in schools (Ardiansyah et al., 2021). In this case, outreach activities not only function as a learning medium, but also as a form of preventive intervention that is cheap,

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practical, and applicable in communities with limited resources.

The main contribution of this study is in emphasizing the importance of school-based health interventions to prevent noncommunicable diseases from an early age. By introducing knowledge about a healthy lifestyle, the dangers of excessive salt consumption, the importance of physical activity, and the influence of the environment and family on health, students can begin to form healthier mindsets and behaviors. These findings broaden the scope of promotive and preventive approaches in public health science, especially in the context of health education for school-age children.

Furthermore, the results of this study are expected to be a reference for schools, health services, and child care institutions in designing locally and contextually based health education programs. By utilizing a simple but structured approach as used in this activity, schools in coastal areas and 3T (Disadvantaged, Frontier, and Outermost) areas can be more empowered in creating a generation that is health conscious from an early age.

Conclusion

Based on the results of the study conducted through counseling activities and pretest and post-test measurements of students at IT Jannatul Firdaus Private Middle School, it can be concluded that the level of student knowledge regarding risk factors for hypertension in children in coastal areas is still relatively low before the intervention is given. This is indicated by the average correct answer of 18.5% in the pre-test. However, after interactive and communicative counseling, there was a significant increase with the average correct answer increasing to 68.5%.

These findings indicate that participatory and educational counseling methods, such as a combination of visual presentations, discussions, quizzes, and question and answer sessions, have proven effective in increasing students' understanding of the importance of a healthy diet, physical activity, and the role of the social and economic environment on the risk of hypertension. Thus, this activity successfully answered the research objectives, namely identifying and increasing understanding of factors related to the risk of hypertension in children in coastal environments.

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This counseling also contributes to the development of promotive and preventive strategies in schools, and can be used as a simple, applicable model to be implemented in other schools, especially those in areas with limited access

to information and health services. Efforts like this are expected to form awareness of a healthy lifestyle from an early age and prevent the emergence of non-communicable diseases in future generations.

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