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# Determinants of Adolescent Health Service Use: Evidence from X Community Health Center in Semarang City

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**Abstract**
**Introduction:** "X" Community Health Center provides adolescent health services, including counseling, information, education, and an integrated adolescent health post. However, adolescent participation in this program remains very low, at only approximately 1.57%. The purpose of this study was to analyze the determinants of adolescent health service utilization in a Community Health Center working area.
**Methods:** Cross-sectional quantitative research was carried out in the "X" Community Health Center working area between November 2024 and February 2025. One hundred and two participants constituted the research sample, and the sample division employed clustered random sampling and the accidental sampling technique to obtain data. Data analysis was performed using the chi-squared test and Andersen's health service utilization theory.
**Results**: In total, 54.9% of the adolescents did not optimally utilize health services. The determinants of adolescent health services were gender (p=0.025), knowledge (p=0.031), attitude (p=0.000), peer support (p=0.000), support from health workers (p=0.000), and access to information (p=0.000).
**Conclusion**: Female, who had good knowledge, peer and health workers' support, and good access to information tended to use adolescent health services. Forming peer mentors to increase adolescent motivation, using educational media, and organizing interesting service programs, as well as disseminating information through "X" Health Center social media.

**Keywords**: Adolescents, Health Service Utilization, Community Health Center, peer support, access to information.


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## Introduction

Adolescent health services are organized through a program called Adolescent Care Health Services (PKPR) which has been developed by the Ministry of Health of the Republic of Indonesia at the community health center since 2003.[1] One of the activities of PKPR is the implementation of an integrated youth health post, which includes counseling services, information provision, communication, education regarding reproductive health, blood pressure checks, height and weight measurements, and blood sugar level measurements).[2]

Adolescents are very vulnerable to reproductive health problems, which can endanger their psychological and social well-being and impact their behavior and health in general. The WHO defines

reproductive health as a state of complete mental, physical, and social well-being in all matters relating to the reproductive system, including its functions and processes, and not merely the absence of disease or infirmity.[3]

Urban adolescent behavior is more likely to fall into deviant behaviors such as brawls, drug use, and promiscuity. From a social perspective, urban adolescents tend to be more individualistic. Access to education for adolescents in cities is also better than for adolescents in villages, which can support their intellectual development. In addition, urban adolescents are more open to cultural changes due to globalization, while adolescents in rural areas are more selective in adopting new information. This can lead to urban adolescents having behaviors that are more easily drawn into free association.[4]

Adolescents who engage in risky sexual behaviors may experience reproductive health problems and unwanted pregnancies. Data from the Basic Health Research in 2018 indicated that in Central Java Province, there were 424 adolescents aged 10-19 who had been pregnant and 263 adolescents who were currently pregnant. Cases of unwanted pregnancies still exist in Semarang City and Central Java Province. “X“ Community Health Center located in the center of Semarang City, which has recorded 11 cases of unwanted pregnancies from January to December 2024.

In addition, other health problems commonly experienced by adolescents, especially adolescent girls, include anemia. The number of anemia cases at “ X “ Community Health Center among adolescent girls is 85 cases of mild anemia and 7 cases of severe anemia, resulting in a total of 92 anemia cases. Furthermore, the trend of non-communicable diseases among adolescents also needs attention, such as obesity, hypertension, and diabetes. Other adolescent health problems that require special attention are non-communicable diseases (NCDs) such as diabetes, obesity, and hypertension. Based on the results of health screening at the adolescent posyandu in the “ X “ Health Center area. In 2024, there were 5 cases of obesity in adolescents. While obesity cases found during screening at schools in the “ X “ Health Center working area were 226 cases of obesity.

The efforts of the Community Health Center to address these adolescent issues include the provision of adolescent health services. One of the activities carried out regularly every month is an adolescent ’sintegrated health post. This activity included education, counseling, height and weight measurements, blood pressure measurements, and blood sugar level checks. Although it has been routinely conducted, participation of adolescents remains low. Out of 3,819 adolescents aged 10-19 years, only about 1,57% or around 60 adolescents have utilized the adolescent health services regularly.

Based on the 2024 Community Health Center Performance Assessment data, the coverage of the PKPR program at “X“ Community Health Center has not yet reached all targets. Of the three indicators, only the number of active integrated adolescent health posts met the target (100%). Meanwhile, for the indicator of adolescents receiving reproductive health counseling, out of a total of 3,819 adolescents, only 3,073 (80%) received counseling. For the counseling indicator, out of a total of 1,614 adolescents targeted, only 807 adolescents (50%) have ever utilized counseling services.

This study used Andersen's theoretical framework of health service utilization, focusing on variables such as age, gender, education level, knowledge, attitudes, support from friends and family, support from health workers, access to information, and individual perceptions. The selection of these variables was based on the results of a preliminary study that had been conducted, which showed the relevance of these factors to the use of adolescent health services.[5]

Therefore, the purpose of this study is to determine and examine the determinants of the use of health services, especially adolescent integrated health posts, by adolescents in the work area of the “ X “ Health Center, Semarang City.

## Methods

This was a quantitative study that used a cross-sectional approach. The population of the study was 3,819 adolescents aged 10-19 years who had used adolescent health services, and lived in the "X" Community Health Center working area. The sample size was determined from a total population of 3,819, using the Slovin formula, which resulted in 102 respondents. To take samples in the "X" Community Health Center working area, the number of respondents was divided evenly across 6 subdistricts using the cluster sampling method. Each sub-district comprised 17 respondents.

This study focuses on the utilization of adolescent health services, namely adolescent health posts, using Andersen's theory of health service utilization. The independent variables were age, education level, gender, attitude, peer support, family support, attitude, health worker support, access to information, and perception of needs, with the dependent variable being the utilization of adolescent health services.

The study was conducted from December 2024-February to 2025. Data collection was conducted using questionnaires administered directly to respondents through the accidental sampling technique, complemented by brief interviews Prior to data collection, the questionnaire was pilot-tested on 30 adolescents outside the "X" Community Health Center working area to ensure its validity. Cronbach Alpha was used for reliability testing and Pearson Product Moment for validity testing of the questionnaire. Based on the Kolmogorov-Smirnov normality test, all variables exhibited a non-normal distribution ($p < 0.05$). Thus, data categorization was performed using the median of each variable. In the analysis of research data, there is univariate analysis, which looks at the distribution of each variable, and bivariate analysis, which uses the chi-square test to see the relationship between variables. The ethical review for this study was conducted by the Faculty of Public Health, Diponegoro University, with ethical approval number 406/EA/KEPK-FKM/2024.

## Results

The following are the results of this research that has been conducted.

*Respondent Characteristics*

Table 1 shows that the total respondents were 102 teenagers, with early adolescent respondents aged 10-14 years, namely 68 respondents, 66.7%) and late adolescents aged 15-19 years, namely 34 respondents, 33.3%). Female respondents, namely 68 (66.7%), also dominated compared to male respondents, namely 34 (33.3%). The majority of respondents were in basic education, totaling 71 respondents (69.6%) at school-level elementary and junior high schools. While some others were on further education, as many as 31 respondents (30.4%), namely at secondary school level above and college. The researcher evenly distributed the number of research respondents, with 17 people in each sub-district, namely "X", Pekunden, Gabahan, Karang Kidul, Brumbungan, and Jagalan.

*Utilization of Adolescent Health Services*

Table 2 shows that teenagers who use adolescent health services focused on integrated health posts are categorized into those who use it well and those who use it poorly. The majority of teenagers who use it well and those who use it poorly are included in the category of less good at utilizing health services, namely, 56 respondents (54.9%) from a total of 102 respondents. Respondents are included in the category to make Optimal Utilization if the respondent utilizes the integrated health service post-adolescents more than six times or at least once every two months in the period January-December 2024. Meanwhile, respondents who utilized adolescent health services at Posyandu less than six times in the period January-December 2024 are included in the Suboptimal Utilization category. According to the national guidelines, adolescent health posts are held monthly, allowing up to 12 visits per year. In this study, utilization was categorized as adequate if adolescents visited the health post more than six times per year (approximately once every two months). This cutoff was chosen to represent regular participation, even if not every month, and to distinguish

adolescents who actively engage in health services from those who attend only occasionally. Poor utilization of adolescent health services is often triggered by a lack of knowledge and the limited dissemination of information about available services. Most respondents also stated that their willingness to use these services was influenced by peer encouragement and motivation from the health workers.

*Determinants of Adolescent Health Service Utilization*

The results show that the determinants of the use of adolescent health services are gender, attitudes, knowledge, peer support, health worker support, and access to information. Table 3 presents the results of the relationship test between the independent and dependent variables. Of the 102 respondents, 68 were identified as being in early adolescence (age 10–14). Table 3 reveals that the majority of late adolescents did not make proper use of adolescent health services (55.9%), whereas most early adolescents did utilize these services (45.6%). The results of the chi-square test indicated that there was no significant relationship between age and the utilization of health services (p = 0.888).

Most of the 102 respondents in this study (73 people) were female adolescents. According to the findings, the majority of male adolescents (72.4%) tended to underutilize adolescent health services, whereas more than half of female adolescents (52.1%) utilized them well. The results obtained were that there was a correlation between gender and utilization of health services as indicated by the results of the Chi-Square test on the two variables (p = 0.025)

The respondents' education level was categorized into basic education (elementary and junior high school) and advanced education (high school and college). Most respondents (71 people) had a basic education level. Respondents with advanced education showed a higher tendency to utilize adolescent health services (45.2%) compared to respondents with basic education who mostly did not utilize them (54.9%). However, based on the results of the chi-square test, no significant relationship was found between educational level and utilization of adolescent health services (p = 0.933).

According to the research findings, 26 respondents had little knowledge about adolescent health services, while the majority (76 people) knew a lot of information about the services. More than half (51.4%) of the group with good knowledge actively utilized adolescent health services. On the other hand, the majority of respondents (73.1%) who did not utilize health services came from a group with poor knowledge. Knowledge and utilization of adolescent health services were significantly correlated, as proven by statistical analysis of the chi-square test (p = 0.031).

Furthermore, this study found that the number of respondents with positive and negative attitudes towards the use of adolescent health services was the same (51 people each). Respondents with positive attitudes tended to be more active in utilizing health services (64.7%), whereas respondents with negative attitudes tended to be less likely to utilize them (74.5%). The results of the chi-square test showed a significant relationship between attitudes toward and utilization of adolescent health services (p = 0.000).

The research findings showed that, although 45 respondents felt that they lacked peer support, the majority of 57 respondents said they received good support. The majority (63.2%) of those who reported feeling that they had good peer support also actively utilized adolescent health services. On the other hand, the majority of respondents (77.8%) who felt that they lacked peer support also tended to use health services less. A significant correlation between peer support and adolescent health service utilization was demonstrated using the chi-square test (p = 0.000).

In this study, 78 respondents said their families provided support to utilize adolescent health services well, while 24 respondents said their families were less supportive. Almost half (48.7%) of the adolescents considered their families to be supportive of actively using health services. By contrast, adolescents who felt

less supported by their families were less likely to seek medical care. The results of the chi-square test showed no significant relationship between family support and use of adolescent health services (p = 0.185).

Most respondents (69 people) reported that they received good support from health workers, whereas 33 felt that they received less support. The respondents who felt supported by health workers tended to be more active in utilizing adolescent health services (58.0%). Conversely, respondents who felt less supported by health workers (81.8%) tended to use health services less. Support from health workers and utilization of adolescent health services were found to have a significant correlation (p = 0.000) in the chi-square test results.

There were 38 respondents who believed that they had limited or poor access to information regarding adolescent healthcare, and the majority of respondents (64 people in this study) felt that they had good access. While respondents with less access to information (81.6%) were less likely to use health services, those with good access to information tended to be more active in using services (60.9%). Access to information and the utilization of adolescent health services were found to be significantly related after the chi-square test (p = 0.000).

Finally, it was found that most respondents (63 respondents) had a good perception of the need for utilization of adolescent health services, while 39 people had a less positive perception. Respondents with a positive perception of need tended to be more active in utilizing health services (47.6%), whereas respondents with a less positive perception of need (59.0%) tended to utilize them less. However, the results of the chi-square test showed that there was no significant relationship between the perception of need and utilization of adolescent health services (p = 0.515).

Table 1. Characteristic respondent

| **Respondent Characteristics** | **f** | **%** |
|---|---|---|
| **Age** | | |
| Early Adolescence (10-14 years old) | 68 | 66,7 |
| Late Adolescence (15-19 years old) | 34 | 33,3 |
| **Gender** | | |
| Male | 29 | 28,4 |
| Female | 73 | 71,6 |
| **Level of Education** | | |
| Basic Education | 71 | 69,6 |
| Further Education | 31 | 30,4 |

Table 2. Frequency Distribution of Adolescent Health Service Utilization

| **Utilization of Adolescent Health Services** | **F** | **%** |
|---|---|---|
| Suboptimal Utilization | 56 | 54,9 |
| Optimal Utilization | 46 | 45,1 |

Tabel 3. Results of the Test of the Relationship between Dependent Variables and Independent Variables

| Variables | Category | Utilization of Services Adolescent Health | | | | Total | | *p-value* |
|---|---|---|---|---|---|---|---|---|
| | | Not Good | | Good | | | | |
| | | f | % | f | % | f | % | |
| Age | Early Adolescence | 37 | 54.4 | 31 | 45.6 | 68 | 100.0 | 0.888 |
| | Late Adolescence | 19 | 55.9 | 15 | 44.1 | 34 | 100.0 | |
| Gender | Man | 21 | 72.4 | 8 | 27.6 | 29 | 100.0 | 0.025 |
| | Woman | 35 | 47.9 | 38 | 52.1 | 73 | 100.0 | |
| Education Level | Basic Education | 39 | 54.9 | 32 | 45.1 | 71 | 100.0 | 0.993 |
| | Further Education | 17 | 54.8 | 14 | 45.2 | 31 | 100.0 | |
| Knowledge | Not Good | 19 | 73.1 | 7 | 26.9 | 26 | 100.0 | 0.031 |
| | Good | 37 | 48.7 | 39 | 51.4 | 76 | 100.0 | |
| Attitude | Negative | 38 | 74.5 | 13 | 25.5 | 51 | 100.0 | 0.000 |
| | Positive | 18 | 35.3 | 33 | 64.7 | 51 | 100.0 | |
| Peer Support | Inadequate | 35 | 77.8 | 10 | 22.2 | 45 | 100.0 | 0.000 |
| | Adequate | 21 | 36.8 | 36 | 63.2 | 57 | 100.0 | |
| Family Support | Inadequate | 16 | 66.7 | 8 | 33.3 | 24 | 100.0 | 0.185 |
| | Adequate | 40 | 51.3 | 38 | 48.7 | 78 | 100.0 | |
| Health Worker Support | Inadequate | 27 | 81.8 | 6 | 18.2 | 33 | 100.0 | 0.000 |
| | Adequate | 29 | 42.0 | 40 | 58.0 | 69 | 100.0 | |
| Access to Information | Limited | 31 | 81.6 | 7 | 18.4 | 38 | 100.0 | 0.000 |
| | Adequate | 25 | 39.1 | 39 | 60.9 | 64 | 100.0 | |
| Perception of Needs | Not Enough Need | 23 | 59.0 | 16 | 41.0 | 39 | 100.0 | 0.515 |
| | Need | 33 | 52.4 | 30 | 47.6 | 63 | 100.0 | |

## Discussion

This study showed that the majority of the respondents were early adolescents aged 10-14 years (66.7%). Age is the length of time a person has lived since birth until this study was conducted in years.[6] According to Novalinda et al. (2025), the more mature a person is, the greater their desire to utilize health services. This can happen because the more mature a person

is, the more their awareness of health will increase compared to a younger age.[7] However, in contrast to Novalinda's findings, the results of this study indicate that age does not significantly determine the utilization of adolescent health services. The findings of this study are in line with those of Lailia (2019), who concluded that age had no direct relationship with the utilization of adolescent health services. Age itself is not the main determining factor for someone using health services, especially if other factors such as knowledge, attitudes, and social support are more dominant. Therefore, age alone cannot be used as an indicator of a person's maturity in utilizing health services.[8]

Gender is defined as the physical and biological difference between women and men (Karina, 2020) and is also a factor that influences the use of health services. In this study, the majority of respondents were female adolescents, with a total of 73 people. The tendency for women to use adolescent health services more frequently can be explained by the fact that women tend to report symptoms of illness and consult doctors more frequently than men.[9] Research by Novalinda et al. (2025) showed that gender has a strong relationship with the use of services by adolescents. These findings also support those of this study. Women are said to be more proactive and feel a need for health workers to conduct health checks and consultations. To increase participation from adolescent girls and boys, socialization and education can be carried out in collaboration with schools and holding these activities together with other activities when adolescents gather, such as during youth organizations.[10]

The opinion that higher education will encourage someone to be more active in utilizing health services (Megawati, 2015 in Zaini, 2022) is not supported by the findings of this study.[11] This study show that the level of education does not have a significant relationship with the utilization of health services. The majority of respondents in this study came from elementary education levels, while the majority of respondents who utilized adolescent health services came from higher education levels. However, the difference in the utilization of health services between the two education groups is not too striking, because in general, both groups are still less than optimal in utilizing health services.[12] This study is in line with the findings of a study by Karina (2020) which stated that there was no significant relationship between education level and the utilization of adolescent health care services.[6] The level of education also certainly guarantees the utilization of health services because there are influential factors. Although the respondents' education level was high, most respondents did not have enough time to utilize health services. Higher education without knowledge in the health sector will not influence an individual's decision to utilize health services.[10]

Adolescent interest in utilizing health service activities is influenced by predisposition factors, particularly knowledge, which plays a crucial role in shaping behavior (Yasa, 2024). In this study, most adolescents (51.4%) had good knowledge; however, 19 with poor knowledge and 37 with sufficient knowledge still did not use health services. This finding is consistent with Rahmah (2020), who reported that good knowledge significantly increased adolescents' use of health services. Since knowledge affects behavior, efforts to improve adolescents' understanding can be supported through engaging educational media, such as animated videos or learning-through-play methods, to encourage greater participation in health service activities at " X " Community Health Center.[8]

According to Notoatmodjo (2012), individuals may respond to various psychological objects they encounter by forming certain attitude patterns. A person's attitude can be influenced by several factors such as culture, life experiences, media, people close to them, educational and religious institutions, and their own feelings. According to the research findings, 51 respondents behaved well, and 51 respondents behaved less well. The results of this study were in accordance with those reported by Anjani (2021). The study found a relationship between adolescents' views

and their use of adolescent health services. Respondents who had good information about health services tended to view the use of these services positively. The higher a person's level of knowledge, the higher their attitude.[13]

Social support from peers includes assistance in the form of verbal and non-verbal communication, information, and actions to help groups of the same age. Peers help someone in the adolescent transition.[14] Peer support can influence adolescents to participate in the use of adolescent health services (Pradana and Susilawati, 2019). A total of 57 respondents in this study benefited from good peer support. Most adolescents who had supportive peers also effectively utilized adolescent health services (63.2%). The results of this study were in accordance with those reported by Kurniawati (2023). Peer support and the utilization of adolescent health service activities were significantly correlated in this study. Peer invitations have an impact on adolescents' decisions to engage in adolescent health service activities. Adolescents are less likely to participate in adolescent health service activities if their friends do not participate.[15] Peer support can have a significant impact because most adolescents spend more time with their peers than with their parents or other family members (Sari, 2022). In an effort to increase peer support, peer cadres can be formed to support adolescents in utilizing health services. In this study, the majority of respondents agreed that their peers provided motivation to participate in adolescent health service activities (63.7%). This indicates that adolescents' interest is also influenced by peer motivation, as they tend to be more easily influenced by their peers.[14]

Family support is an act and attitude of acceptance from the family towards other family members, which can be in the form of informational support, instrumental support, assessment, and emotional support. Providing support to adolescents can be done in various ways, for example, accompanying adolescents to come to the adolescent health post and providing information about the importance of participation in adolescent health services.[16] This study revealed that although 78 respondents received good family support, 40 of these respondents (51.3%) did not utilize adolescent health services. The findings in this study are in line with research by Muliati (2020) which states that there is no relationship between family support and the use of adolescent health services. In this study, the majority of respondents (92.2%) were granted permission by their families to participate in adolescent health service activities. However, when families only provide permission without actively supporting or facilitating adolescent participation, such actions do not effectively increase adolescent involvement in utilizing these services. Furthermore, although many families are aware of the program, their motivation and facilitation for adolescents to participate remain limited. Muliati (2020) also emphasized that adolescents are more likely to be influenced by their peers than by their families when deciding whether to engage in health service activities. Overall, the findings of this study indicate no significant relationship between family support and adolescent health service utilization.[17]

Health workers play a crucial role as educators by providing guidance, counseling, and support to adolescents in addressing health issues. Adolescent health services encompass promotive, preventive, curative, and rehabilitative efforts, all of which are reinforced by health workers' involvement. In this study, 69 respondents reported receiving adequate support from health workers, and the majority of adolescents with strong support (58.0%) consistently utilized these services. These findings align with those of Rahmah (2020), who emphasized the significant relationship between health worker support and the use of adolescent-friendly health services. Given their influence on adolescents' decisions, regular training and mentoring are essential for optimizing the roles of health workers and cadres. In this study, the majority of respondents agreed that health workers clearly delivered educational materials during adolescent health service activities (97%). Such training may include effective communication strategies, engaging activities for adolescent health

posts, and counseling skills to ensure that adolescents feel comfortable seeking services.

Access to information affects an individual's level of knowledge. A person who can access information well is assumed to have sufficient knowledge. Information can be accessed through various sources, including print and digital media and direct information delivery. Adolescents will use health services well if they have good understanding and adequate access to information[18]. A total of 64 respondents stated that they had good access to information. Most respondents (60.9%) who could access information also used adolescent health services. The majority of the respondents had received socialization from community health center officers regarding adolescent health services (80.4%). The information obtained influenced adolescents' decisions on whether to participate in adolescent health service activities. The findings in this study are in line with the findings in the study by Laili (2019) which stated that there is a relationship between exposure to information and adolescent health care services. Access to this information has a major influence on the level of adolescent knowledge regarding the implementation of adolescent health services, and also influences the attitude of adolescents to participate in the implementation of health services.[19] Therefore, the " X " Health Center can utilize the health center's social media to post the latest information regarding adolescent health service activities, as well as provide information on health education packaged in interesting content.[20]

An individual's perception of their need for health services strongly influences their utilization, with adolescents who recognize this need being twice as likely to seek care than those who do not. In this study, 63 adolescents reported a good perception of the need for adolescent health services; however, 33 of them still underutilized such services.[16] The majority of respondents agreed that adolescent health service activities provide significant benefits for adolescents (98%). Adolescents who recognize and experience these benefits are more likely to participate in regular and consistent activities. This finding supports Karina (2020), who found no significant correlation between perceived need and service utilization. Perceptions of need generally arise from an individual's assessment of their health condition, with adolescents often seeking care only when they feel unwell. Nonetheless, these perceptions can also be shaped by predisposing and enabling factors, suggesting that health service utilization will be more likely when adolescents not only recognize the need but also receive adequate support to act on it.[4]

## Conclusion

The determinants of the utilization of adolescent health services include female gender, good knowledge and attitude, peer and health worker support, and good access to information. It is recommended for " X " Health Center to form peer cadres, to motivate their peers, conduct socialization and education using interesting educational media, provide more interesting services during adolescent posyandu such as inviting speakers from outside and combining other interesting activities with the implementation of adolescent posyandu, and optimize the dissemination of information through " X " Health Center's social media. Future research should include a wider range of variables tailored to the research objectives to allow for a more in-depth analysis. It is also recommended to select two contrasting research locations—one in an urban Community Health Center and another in a rural or remote area—to enable comparison of adolescent health service implementation across different settings.

## Ethics approval

This research received ethical approval from The Research And Community Engagement Ethical Committee Faculty of Public Health Diponegoro University (406/EA/ KEPK-FKM/2024)

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