



WALUYA THE INTERNATIONAL SCIENCE OF HEALTH JOURNAL

Determinants of Dental Health Service Utilization at Community Health Centers in Konawe District: A Cross-Sectional Study

Iga Asriani¹, Sunarsih², Ratna Umi Nurlila²

¹Community Health Center of Konawe District, Indonesia

²Mandala Waluya University, Indonesia

Correspondence: igaasriani@yahoo.com

ARTICLE INFO

Article history

Received : August 31st, 2025

Revised : December 29th, 2025

Accepted : December 31st, 2025

Keywords

Dental Health Services,
Health Personnel,
Community Knowledge,
Government Support.

ABSTRACT

Introduction: Dental health services are an essential component of efforts to improve public health. However, dental health services at the community health center level still face various challenges influenced by both internal and external factors. This study aims to analyze the factors associated with dental health services in community health centers of Konawe District, including the availability of dental health personnel, facilities, community knowledge, and government support.

Method: This was an analytical quantitative study with a cross-sectional design. The population is all dental patients in the Health Center amounting to 300 divided into 29 Puskesmas and a sample of 172 using the proportional random sampling technique. The research sample consisted of community respondents utilizing dental health services at the Health centers in Konawe District. Data analysis was conducted using the Chi-Square test with a significance level of $\alpha = 0.05$.

Result: The study revealed that all variables were significantly associated with dental health services. Facilities emerged as the variable with the highest strength of association ($\chi^2 = 97.435$), followed by government support ($\chi^2 = 61.748$), availability of dental health personnel ($\chi^2 = 59.407$), and community knowledge ($\chi^2 = 55.257$).

Conclusion: There is a significant relationship between the availability of dental health personnel, facilities, community knowledge, and government support with dental health services in Health centers of Konawe District. Efforts to improve dental health services can be achieved by strengthening the availability of facilities and health personnel, enhancing community education, and reinforcing government policy support.

Introduction

Oral health is one of the important indicators in determining the overall level of public health.

Untreated dental health problems can affect an individual's quality of life, decrease productivity, and increase the economic burden due to treatment costs.^[1] To support optimal dental health services,

the availability of health personnel, particularly dentists, is a highly vital component. Findings from the 2023 Indonesian Health Survey show that the DMFT-T index across all age groups decreased compared to the 2018 Riskesdas results. Nevertheless, 56.9% of the population still suffer from dental and oral problems, and only 11.2% received care from dental health professionals.

One of the reasons for the lack of dental health services at community health centers is the habit of only visiting when experiencing pain or a severe dental condition. People generally seek care only when they experience pain or when dental conditions have become severe. This behavior hinders preventive efforts and leads to a high incidence of dental caries and tooth extractions that could otherwise have been prevented earlier. Several factors contribute to the public's neglect of oral health, including limited dental health education programs at Health centers, insufficient understanding of the importance of routine dental check-ups every six months, and a lack of knowledge that bacterial infections from unhealthy gums can enter the bloodstream and increase the risk of vascular blockage. Gum disease has been linked to an elevated risk of cardiovascular disease and stroke. Furthermore, many community members still perceive toothache as a non-serious problem that can be self-managed with over-the-counter pain relievers.^[2]

The limitation of human resources (HR), particularly the number of dentists and dental health workers (dental nurses and dental therapists) at community health centers, remains a significant challenge, especially in remote areas. Several factors contribute to the shortage of dental health personnel at Health centers, including the uneven distribution of dentists, dental nurses, and dental therapists. Most dentists prefer to work in large cities due to better career opportunities, improved facilities, and greater financial security, while in remote regions, the number of dentists is very limited. In fact, some community health centers do not have any dentist at all.^[3]

The recruitment of dentists in community health centers is often limited due to restricted government allocation for healthcare personnel. As a result, many health centers have only one dentist or rely solely on non-dentist dental health workers^[4]. The prevalence of oral health problems in Indonesia remains concerning: 57.6% of the

population experience dental and oral health issues. Visits to dentists are still low, with only 10.2% of the population seeking dental care within the past year. Regarding toothbrushing habits, 94.2% of the population brush their teeth daily, yet only 2.8% practice proper brushing (after breakfast and before bedtime).^[5] Unattractive incentives, including uncompetitive salaries and allowances for dentists in remote areas compared to private clinics or hospitals in urban centers, further exacerbate the problem. In addition, the lack of supporting facilities such as housing or transportation allowances for dentists assigned to rural areas adds to the challenges.^[6] Work environment challenges, such as difficult working conditions, limited equipment, medicines, and sterilization facilities in rural health centers, as well as limited access to professional training and development opportunities, make the situation more difficult for dentists in remote areas. Moreover, there is a lack of interest in public dental health services, as many dental graduates prefer to work in private clinics or establish their own practices rather than serve at health centers.^[7]

The prevalence of dental caries in Indonesia has reached 82.8%, with 56.9% of the population aged ≥ 3 years experiencing dental and oral health problems.^[8] Meanwhile, the number of dental health personnel in Indonesia in 2022 was recorded at 27,120 dentists. This indicates that 3,285 or 31.6% of community health centers still do not have dentists, most of which are located in eastern Indonesia. Currently, the total number of dentists in Indonesia is only around 40,000, which remains insufficient to meet the dental health care needs of 270 million people. With a ratio of 1:3000 dentists - meaning that each dentist is responsible for 3,000 patients - Indonesia would require at least 90,000 dentists to adequately serve its population of 270 million.^[9]

In Southeast Sulawesi Province, data from 2022 show a population of 2,673,733 people, with only 177 general dentists and 3 dental specialists available. The coverage of dental and oral health examinations among elementary, junior high, and senior high school students was recorded at 23.5%.^[10]

The issue of dentist availability in Konawe District is evident in the local health profile, which shows that of the 29 community health centers in the district, only 8 dentists are available. This

number is insufficient to serve the entire population. The shortage of dental health personnel in Konawe District not only limits access to dental health services but also affects the achievement of national programs such as the School Dental Health Efforts and other promotive-preventive services.

Comparison of Dental Patient Coverage at Community Health Centers in Konawe District (2022–2024) The diagram below illustrates the comparison of dental patient coverage (in percentage) between community health centers with dentists and those without dentists in Konawe District during the period 2022–2024.^[10]

Comparison of Dental Patient Coverage Between Community Health Centers With and Without Dentists in Konawe District (2022–2024) Community health centers with dentists reported significantly higher dental patient coverage. At Unaaha Health Center, coverage reached 2,929 patients or 97% during 2022–2024. Sampara Health Center recorded 1,098 patients or 90%; Morosi Health Center 3,108 patients or 92%; Wawotobi Health Center 2,623 patients or 95%; Abuki Health Center 1,343 patients or 91%; Besulutu Health Center 1,231 patients or 90%; Anggalomoare Health Center 2,674 patients or 94%; and Kapoiala Health Center 1,054 patients or 91%. In contrast, community health centers without dentists demonstrated significantly lower coverage. Tongauna Health Center reached 878 patients or 33% during 2022–2024; Routa Health Center 508 patients or 31%; Asinua Health Center 532 patients or 32%; Latoma Health Center 483 patients or 33%; Soropia Health Center 576 patients or 33%; Tawanga Health Center 581 patients or 32%; Amonggedo Baru Health Center 611 patients or 32%; and Anggoota Health Center 540 patients or 33%. From the diagram above, it can be concluded that community health centers with dentists in the past three years covered more than 90% of dental patients on average, compared to only around 30% at centers without dentists.

Method

This research is a quantitative analytical study with a cross-sectional approach, measuring the relationship between factors related to dental health services at a single point in time. The

population in this study was all dental patients at 29 Community Health Centers in Konawe Regency. Data collection method: All 300 dental patients, divided across 29 Community Health Centers, served as subjects in this study. The sampling technique used in this study was proportional random sampling, a technique used when the population consists of several subgroups (strata) with unequal numbers. Therefore, the researcher sampled all dental patients at Community Health Centers in Konawe Regency in 2025. The sample size was calculated using the Slovin formula in this study, amounting to 172 people. The data collection method used a questionnaire, a research instrument that had previously undergone validity and reliability testing. The researcher provided questionnaires to respondents, then the collected data was tabulated and statistically analyzed, describing the dependent and independent variables for further analysis and presented in a distribution

Result

Table 1 shows that 93 (87%) respondents reported having good dental health personnel and providing good dental health services, while 14 (13%) respondents reported having poor dental health services. Meanwhile, 18 (28%) respondents reported having no dental health personnel and providing good dental health services, and 47 (72%) respondents reported having no dental health personnel and providing poor dental health services. The chi-square test results obtained a calculated X^2 value of 59.407 and a table X^2 value of 3.841. Therefore, the calculated X^2 value is greater than the table X^2 value, so H_0 is rejected and H_a is accepted, indicating a relationship between the availability of dental health personnel and dental health services. This test is also supported by a P-value of $0.000 < \alpha = 0.05$. Therefore, the test indicates a relationship between the availability of dental health personnel and dental health services at the Konawe Regency Community Health Center.

Table 2 shows that 95 (96%) respondents had complete facilities with good dental health services, and 4 (4%) respondents had complete facilities with poor dental health services. 16 (22%) respondents had incomplete facilities and good dental health services, and 57 (78%)

respondents had incomplete facilities and poor dental health services. The results of the chi-square statistical test obtained a calculated X^2 value of 97.435 and a table X^2 value of 3.841. Thus, the calculated X^2 is greater than the table X^2 , so H_0 is rejected and H_a is accepted, meaning there is a relationship between facilities and dental health services. This test is also supported by a P-value of $0.000 < \alpha = 0.05$. So from this test it can be seen that there is a relationship between facilities and dental health services at the Konawe Regency Community Health Center.

Table 3 shows that 85 (89%) respondents had sufficient knowledge with good dental health services and 10 (11%) respondents had sufficient knowledge with poor dental health services. Meanwhile, 26 (34%) respondents had insufficient knowledge and good dental health services, and 51 (66%) respondents had insufficient knowledge and poor dental health services. The results of the chi square statistical test obtained a calculated X^2 value of 55.257 and a table X^2 value of 3.841. Thus, the calculated X^2 is greater than the table X^2 , so H_0 is rejected and H_a is accepted, meaning there is a relationship between knowledge and dental health

services. This test is also supported by a P value of $0.000 < \alpha = 0.05$. So from this test it can be seen that there is a relationship between knowledge and dental health services at the Konawe Regency Community Health Center.

Table 4 shows that Good Government Support with Good Dental Health Services is 99 (85%) respondents and Good Government Support with Poor Dental Health Services is 18 (15%) respondents. While Poor Government Support and Good Dental Health Services is 12 (22%) respondents and Poor Government Support and Poor Dental Health Services is 43 (78%) respondents. The results of the chi square statistical test obtained a calculated X^2 value = 61.748 and a table X^2 value = 3.841. Thus, the calculated X^2 is greater than the table X^2 , so H_0 is rejected and H_a is accepted, meaning there is a relationship between Government Support and dental health services. The test is also supported by a P value = $0.000 < \alpha = 0.05$. So from the test it can be seen that there is a relationship between Government Support and Dental Health Services at the Konawe Regency Community Health Center.

Table 1
Relationship between the Availability of Dental Health Personnel and Dental Health Services at Community Health Centers in Konawe Regency

Availability of Dental Health Workers	Dental Health Services				Total		Statistical Test
	Good		Not good		n	%	
	n	%	n	%			
There is	93	87	14	13	107	100	$X^2_{table} = 3,841$ $X^2_{count} = 59,407$
There isn't any	18	28	47	72	65	100	
Total	111	115	61	85	172	100	

Table 2
Relationship between Facilities and Dental Health Services at Community Health Centers in Konawe Regency

Means	Dental Health Services				Total		Statistical Test
	Good		Not good		n	%	
	n	%	n	%			
Complete	95	96	4	4	99	100	$X^2_{table} = 3,841$ $X^2_{count} = 97,435$
Incomplete	16	22	57	78	73	100	
Total	111	118	61	82	172	100	

Table 3
Relationship between Knowledge and Dental Health Services at the Konawe Regency Community Health Center

Knowledge	Dental Health Services				Total		Statistical Test
	Good		Not good		n	%	
	n	%	n	%			
Enough	85	89	10	11	95	100	$X^2_{table} = 3,841$ $X^2_{count} = 55,257$
Not enough	26	34	51	66	77	100	
Total	111	123	61	77	172	100	

Table 4
Relationship between Government Support and Dental Health Services at Community Health Centers in Konawe Regency

Government Support	Dental Health Services				Total		Statistical Test
	Good		Not good		n	%	
	n	%	n	%			
Good	99	85%	18	15%	117	100%	$X^2_{table} = 3,841$ $X^2_{count} = 61,748$
Not good	12	22%	43	78%	55	100%	
Total	111	107	61	93	172	100	

Discussion

The Relationship Between the Availability of Dental Health Professionals and Dental Health Services

Dental health services at primary health facilities such as community health centers Health centers are highly dependent on the availability of dental health professionals, particularly dentists and dental nurses.^[11] The unequal distribution of medical personnel across regions is often a major contributing factor to the limited coverage of dental services.

The availability of dental health professionals is closely linked to the quality and coverage of dental services. Without professional staff, services will decline, the public will be less educated, and preventable dental problems will become more serious.^[12]

From the results of research that has been conducted at the Konawe Regency Health Center, it shows that out of 172 respondents, the Availability of Existing Dental Health Workers with Good Dental Health Services was 93 (87%) respondents and the Availability of Existing Dental Health Workers with Poor Dental Health Services was 14 (13%) respondents. While the Availability of Dental Health Workers was None and Good Dental Health Services was 18 (28%) respondents and the Availability of Dental Health Workers was None and Poor Dental Health Services was 47 (72%) respondents.

This is in line with research on the relationship between health workers and interpersonal communication between doctors and patients regarding dental health services at A.W. Sjahranie Regional Hospital, Samarinda, in 2020, that dental health workers were in the unavailable category with 63.8% (n = 51) of respondents dissatisfied with dental health services and 37.0% (n = 30) of respondents satisfied. Meanwhile, 139 (100%) of respondents stated that dental health workers were available, including 15.8% (n = 22) of respondents who were dissatisfied with health services and 84.2% (n = 117) of respondents who were satisfied. Based on the results of the statistical test, a p value of 0.001 was obtained at $\alpha = 0.05$ because the p value (0.001) ≤ 0.05 , which means that there is a significant influence between dental health workers and dental health services at A.W. Sjahrine Regional Hospital, Samarinda.^[13]

The Relationship Between Facilities and Dental Health Services

Health facilities are all forms of medical equipment, tools, and physical facilities used in the healthcare process. Complete dental care facilities are a key factor in improving the coverage and quality of dental care. Without these facilities, medical personnel cannot perform procedures, and services are limited to administrative or referral services, which are ineffective for the community.^[14]

From the results of research that has been conducted at the Konawe Regency Community Health Center, it shows that out of 172 respondents, Complete Facilities with Good Dental Health Services were 95 (96%) respondents and Complete Facilities with Poor Dental Health Services were 4 (4%) respondents. Meanwhile, Incomplete Facilities and Good Dental Health Services were 16 (22%) respondents and Incomplete Facilities and Poor Dental Health Services were 57 (78%) respondents.

This is in line with Novianty's (2021) research on the role of facilities and infrastructure with health services at the Routa Community Health Center in Konawe Regency, as many as 74 people (77.1%) were in the complete/functional category and 22 people (22.9%) were incomplete/damaged. Then, 22 respondents stated that the facilities and infrastructure were in the incomplete/damaged category, most of which were 13 respondents (13.5%) incomplete/damaged and 9 respondents (9.4%) complete/functioning. Furthermore, of the 74 respondents who stated that the facilities and infrastructure were in the complete/functioning category, most of which were 16 respondents (16.7%) incomplete/damaged and 58 respondents (60.4%) complete/functioning. Based on the results of the statistical test, a p value of 0.001 was obtained at $\alpha = 0.05$ because the p value ($0.001 \leq 0.05$), which means that there is a significant influence between facilities and health services at the Konawe Regency Community Health Center.

The Relationship Between Knowledge and Dental Health Services

Low public knowledge is one of the main factors contributing to the number of visits and coverage of dental services at community health centers. Education and outreach efforts play a crucial role in increasing awareness and utilization of dental health services. Public knowledge of dental health refers to the level of individual understanding of the importance of maintaining dental and oral health.^[15]

From the results of research conducted at the Konawe Regency Health Center, it shows that 85 (89%) respondents have sufficient knowledge with good dental health services and 10 (11%) respondents have sufficient knowledge with poor dental health services. Meanwhile, 26 (34%) respondents have insufficient knowledge and good

dental health services and 51 (66%) respondents have insufficient knowledge and poor dental health services.

This is in line with the research of Factors Associated with the Utilization of Dental and Oral Health Services at the Karanganyar Community Health Center in Purbalingga, Central Java.^[16] The results of the study found that respondents who utilized dental and oral health services in the last three months before the COVID-19 pandemic were 76.8%; unemployed 35%; low education 69.2%; high knowledge level 81.1%; low income 83.2%; and 85.1% stated that accessibility was not affordable. The results of the chi-square test showed a significant relationship between the level of knowledge ($p = 0.02$), income ($p = 0.04$), education ($p = 0.012$) and the utilization of dental and oral health services. The results of the logistic regression test showed that the knowledge factor $OR = 0.569$ (95% CI: 0.358-0.903) was the most dominant factor related to the utilization of dental and oral health services. The conclusion of this study is that the level of knowledge, income, and education have a significant relationship with the use of dental and oral health services at the Karanganyar Community Health Center.

The Relationship Between Government Support and Dental Health Services

Government support in the context of dental health services is a form of involvement and commitment from government agencies, both central and regional, in providing, financing, and developing public dental health services. This support includes: Providing dentists and support staff, Procuring facilities and infrastructure, Allocating funds, Formulating regional policies regarding dental services, and conducting regular dental education and promotion programs.^[17]

Without local government involvement, dental health services often lack adequate human resources, experience shortages of medical equipment and materials, lack consistent preventive and promotive programs, and lack strategies for increasing service coverage. Local government support in the form of personnel, facilities, policies, and budgets is highly correlated with dental health services at Community Health Centers. Strong support from local governments is needed to improve access to and the quality of public dental health services.^[18]

From the results of research that has been conducted at the Konawe Regency Health Center, it shows that Good Government Support with Good Dental Health Services is 99 (85%) respondents and Good Government Support with Poor Dental Health Services is 18 (15%) respondents. Meanwhile, Poor Government Support and Good Dental Health Services are 12 (22%) respondents and Poor Government Support and Poor Dental Health Services are 43 (78%) respondents.

This is in line study on the Implementation of BPJS Health Dental Service Standards at Community Health Centers in North Sumatra. This study analyzes the implementation of Health dental service standards in Community Health Centers in North Sumatra in 2022 through a qualitative approach. This study aims to identify the level of compliance with service standards and the inhibiting factors in their implementation.^[19] Data were collected through in-depth interviews with 15 dentists and 5 Community Health Center managers, FGDs with 30 patients, field observations, and a review of policy documents and performance reports. The results revealed that only 65% of Community Health Centers met basic service standards, with the main obstacles being limited human resources (30% of medical personnel were not trained), infrastructure (45% did not have ideal treatment rooms), and public awareness (40% had negative perceptions).^[20] Key findings showed a significant disparity between urban and rural Community Health Centers in the availability of diagnostic tools ($p < 0.05$). This study recommends tiered training, optimization of budget allocation, and community education programs to improve service quality. Research makes an important contribution to the development of evidence-based dental health policies at the regional level, particularly in the context of achieving universal health coverage.

Conclusion

There is a significant relationship between the availability of dental health personnel, facilities, community knowledge, and government support with dental health services in Health centers of Konawe District. Efforts to improve dental health services can be achieved by strengthening the availability of facilities and

health personnel, enhancing community education, and reinforcing government policy support.

Reference

1. Damayanti NA. Level of knowledge about dental and oral hygiene of elementary school students. *Indones J Public Health Community Med.* 2021;3(1):6.
2. Sumantri U. *Relationship between number and competence of health workers and visits to dental clinics at community health centers.* 2022.
3. Susilawati. Help-seeking behavior in mental health services: a social learning theory perspective. *Flourishing J.* 2020;3(8):330–337.
4. Nawawi MUH. Influence of motivation and competence of health workers on community health center performance. *Mimbar.* 2020;28(Soc Sci):93–102.
5. Ministry of Health of the Republic of Indonesia. *Basic Health Research 2013.* Jakarta: Health Research and Development Center; 2013.
6. Robbins SP, Judge TA. Relationship between motivation, workload, and work environment with work fatigue. *Indones J Occup Saf Health.* 2020;7(1):20–29.
7. Sinaga AP, et al. Implementation of human resource development for health workers at Pidie Jaya General Hospital in 2019. *J Health Cehadum.* 2022;2(1):12–20.
8. Ministry of Health of the Republic of Indonesia. *Indonesia health profile 2018.* Jakarta: MoH RI; 2018.
9. Ministry of Health of the Republic of Indonesia. *Regulation of the Minister of Health No. 89 of 2015 concerning dental and oral health efforts.* Jakarta; 2015.
10. Konawe Regency Health Office. *Konawe Regency health profile 2022–2024.* Konawe; 2024.
11. Nurlila RU, Fua JL, Meliana. Influence of health education on dental health knowledge

- among students at SD Kartika XX-10, Kendari City. *J Al-Ta'dib*. 2021;9(1):94–119.
12. Sinambela. Patient satisfaction with dental and oral health services at the Cibaliung Community Health Center. *J Kesehatan Siliwangi*. 2021;2(2):625–632.
 13. Jones B, Kwong E, Warburton. Influence of dental and oral health service quality on patient return interest through satisfaction at Tamalate Makassar Community Health Center. *J Muslim Community Health*. 2021;1(2):37–49.
 14. Nadapdap H, Yanwar. *Factors influencing dentist performance in dental and oral health services at community health centers in Jember Regency*. 2017.
 15. Dunleavy, et al. Relationship between health service quality and patient satisfaction at Bp. Gigi Kelayan Health Center, Banjarmasin City. *An Nadaa*. 2024;1(1):26–31.
 16. Rundungan RO, Rattu AJM, Mariaty NW. Performance of dental health officers in dental and oral health services at Datoe Binangkang Regional Hospital. *JIKMU*. 2015;5(2a):414–426.
 17. Anderson. Factors associated with utilization of dental and oral health services at Jayapura Community Health Center, East Oku Regency. *Indones J Health Med*. 2020;3(4):16–27.
 18. Ruly, Nurul. Influence of dental and oral health services on patient satisfaction at community health centers: a literature review. *J Multidisiplin Indones*. 2020;2(4):823–828. doi:10.58344/jmi.v2i4.229
 19. World Health Organization. *Oral health*. Geneva: WHO; 2020 [cited 2020 Nov 20]. Available from: <https://www.who.int/news-room/fact-sheets/detail/oral-health>
 20. Ministry of Health of the Republic of Indonesia. *Regulation of the Minister of Health No. 31 of 2019 concerning the Community Health Center Information System*. Jakarta; 2019