



SOCIAL DETERMINANT MODEL OF UTILIZATION OF FREE HEALTH CHECK PROGRAM AT COMMUNITY HEALTH CENTERS AND ITS IMPACT ON THE QUALITY OF LIFE OF THE COMMUNITY

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ABSTRACT

The Free Health Check (CKG) Program is a promotive and preventive effort to improve early detection of health problems through primary health care services. Although provided free of charge, CKG utilization is not optimal and is influenced by social factors, access, and service delivery. In Surakarta City, as of December 22, 2025, 232,152 of the 588,419 residents had utilized CKG. This condition indicates a gap between service availability and utilization. The utilization of CKG has the potential to improve quality of life through early detection, education, and health follow-up, but research integrating social determinants, CKG utilization, and quality of life is still limited. To analyze the social determinants of CKG utilization, the relationship between CKG utilization and quality of life, and the relationship model between the two in the Surakarta City community. An analytical observational study using a cross-sectional approach involving 500 CKG target respondents from 10 Community Health Centers selected using stratified random sampling. Data were collected through structured interviews using a questionnaire administered directly to respondents. Analysis included univariate, bivariate, and Structural Equation Modeling (SEM) using maximum likelihood with $p < 0.05$. Access to transportation ($B = 0.271$; 95% CI: 0.180–0.362; $p < 0.001$), family support ($B = 0.345$; 95% CI: 0.255–0.435; $p < 0.001$), perceived benefits ($B = 0.404$; 95% CI: 0.312–0.496; $p < 0.001$), and availability of services ($B = 0.166$; 95% CI: 0.048–0.284; $p = 0.006$) were positively associated with CKG utilization, while health needs were negatively associated ($B = -0.147$; 95% CI: -0.253–0.041; $p = 0.007$). CKG utilization was positively associated with quality of life ($B = 1.309$; 95% CI: 1.108–1.510; $p < 0.001$). The model showed adequate fit (RMSEA=0.055; CFI=0.915; TLI=0.885; SRMR=0.049). CKG utilization is influenced by access, social factors, perceptions, services, and health needs and is positively associated with quality of life. Strengthening access, family support, education, and facility readiness are needed to increase CKG utilization.

Keywords: community health center; free health check; quality of life; social determinants; utilization of health services

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INTRODUCTION

Non-communicable diseases (NCDs) are a major public health challenge, requiring enhanced promotive and preventive strategies through risk factor control, early detection, and primary health care. The increasing burden of chronic disease means that health systems cannot focus solely on curative care but also need to strengthen prevention efforts and identify health problems early. Primary health care plays a crucial role in these efforts because it is the level of care closest to the community and plays a key role in health promotion, disease prevention, early detection, and continuity of health care (World Health Organization [WHO], 2023a, 2023c).

Early detection is a crucial strategy in controlling NCDs because it allows risk factors and health problems to be identified before they develop into more serious conditions. The WHO places strengthening preventive and diagnostic services as a crucial component in achieving universal health coverage and controlling NCDs. This approach demonstrates that improving public health is determined not only by the health system's ability to provide treatment, but also by the community's ability to obtain and utilize preventive services in a timely manner (WHO, 2023a, 2023b).

Indonesia is responding to this need through the Free Health Check Program (CKG), which began nationwide in 2025 as an effort to strengthen early detection and primary health care services. The CKG program aims to provide the public with the opportunity to receive free health checks, enabling early detection of risk factors and health problems. The program's implementation places Community Health Centers (Puskesmas) in a strategic position because they are primary health care facilities that interact directly with the community. The CKG technical guidelines emphasize that program implementation includes health checks tailored to target groups, recording test results, education, and follow-up based on test results (Ministry of Health of the Republic of Indonesia, 2026).

Although CKG services are provided free of charge, their availability does not automatically guarantee that all members of the public will utilize them. Health service utilization is a complex behavior influenced by individual characteristics, socioeconomic conditions, health needs, perceptions of health, and factors that facilitate or hinder access to services. Therefore, eliminating financial barriers through free services does not necessarily eliminate social, geographic, informational, or behavioral barriers to health service utilization. In this context, health education and health examinations are important strategies for improving public knowledge and awareness of healthy behaviors and the importance of early disease detection. Combining health education with health screening can help individuals better understand their health conditions and increase awareness of the importance of early prevention and regular health monitoring (Aqsyari et al., 2025).

Empirical evidence in Indonesia shows that utilization of health services still varies across population groups. Cheng et al. (2025), through a study of 31,864 individuals in Indonesia, demonstrated that individual characteristics and health needs are associated with utilization of health services within the National Health Insurance (Jaminan Kesehatan Nasional) system. These findings suggest that expanding health financing has not completely eliminated variation in service utilization. This condition is relevant in the context of CKG because even though the examination is provided free of charge, individuals still need to have knowledge of the program, perceptions of its importance, ability to access health facilities, and motivation to utilize services.

Theoretically, variations in health service utilization can be explained through the Behavioral Model of Health Services Use. Andersen's model categorizes the determinants of health service utilization into predisposing factors, enabling factors, and need factors. Predisposing factors include individual characteristics such as age, gender, education, occupation, and marital status. Enabling factors include socioeconomic conditions, health insurance coverage, access to facilities, transportation, and environmental support. Meanwhile, need factors relate to health conditions and individual perceptions of the need for services. A study by Lederle et al. (2021) shows that Andersen's model remains widely used in health services research and has been applied in various contexts to explain the determinants of service utilization.

The application of this framework is crucial in CKG research because free screening programs are not only related to health needs but also to an individual's ability to access information and service facilities. Social factors such as education, employment, income, family support, and demographic characteristics can influence an individual's ability to recognize health needs and make decisions about utilizing services. Research on primary care utilization also shows that demographic characteristics, health conditions, and social factors can be associated with patterns of health service utilization (Hajek et al., 2021). Therefore, analyzing social determinants is crucial for identifying community groups that are more or less likely to utilize CKG.

Utilization issues are also important in the context of health screening services. Screening is a form of preventive service whose success depends heavily on community participation. Le Bonniec et al. (2022), through an umbrella review of various studies on screening participation, showed that screening utilization is influenced by factors at the individual, social, health worker, service system, and characteristics of the screening procedure. Knowledge, perceptions, beliefs about the benefits of screening, communication with health workers, and experiences with the service can influence a person's decision to participate in screening. These findings suggest that service provision alone is not sufficient to achieve optimal screening coverage.

In the context of Surakarta City, this issue becomes even more relevant because the CKG Program is available through a network of community health centers (Puskesmas) in the city. According to data from the Surakarta City Health Office as of December 22, 2025, 232,152 residents had utilized the CKG out of a total population of 588,419. Therefore, a significant proportion of the population has not utilized the program. This situation indicates that the availability of free services has not yet fully achieved optimal utilization. Variations in the social and demographic characteristics of urban communities also allow for differences in CKG utilization levels across community groups. Therefore, research is needed to identify social determinants related to CKG utilization in the Surakarta City community.

The success of the CKG should be assessed not only by the number of people who undergo the examination but also by the potential health benefits it generates. One important indicator in assessing health service outcomes is quality of life. Quality of life is a multidimensional concept that reflects an individual's perception of their living conditions and encompasses various aspects, including physical health, psychological well-being, social relationships, and the environment. The WHOQOL-BREF is a widely used instrument to measure quality of life in various populations and covers these four main domains (Gagliardi et al., 2021).

Conceptually, the use of CKG has the potential to contribute to quality of life through early detection, risk factor identification, health education, and follow-up services. People who are aware of their health conditions early have a greater opportunity to receive intervention and make behavioral changes before health problems develop into more serious conditions. Therefore, preventive services such as CKG theoretically have the potential not only to improve health status but also to influence an individual's ability to carry out daily activities, psychological well-being, social relationships, and perception of their living environment.

The relationship between primary healthcare services and quality of life has also been a focus of previous research. Kerse et al. (2021) showed that variations in primary healthcare services are associated with a number of health outcomes and quality of life in specific population groups. Furthermore, health-related quality of life can be an important indicator in understanding healthcare needs and utilization patterns (Singh et al., 2021). These findings provide the basis for using quality of life as an outcome in evaluating the benefits of healthcare services, including those oriented toward prevention and early detection.

However, research specifically integrating social determinants, utilization of the Free Health Check Program, and quality of life into a single model remains limited. Cheng et al.'s (2025) study provides evidence on the determinants of health service utilization in Indonesia, but this study was conducted in the context of service utilization within the National Health Insurance system and not specifically within the CKG Program. Meanwhile, Le Bonniec et al. (2022) provide evidence on various determinants of screening participation, but did not specifically examine a free health check program integrated into primary health care in Indonesia. Thus, there remains a gap in knowledge regarding how social determinants influence utilization of this relatively new national preventive health check program and how that utilization relates to community quality of life.

This gap is increasingly important because the CKG is a national program that prioritizes early detection as a strategy for improving public health, yet its utilization rate still shows variation across community groups. Research on the relationship between social characteristics, CKG utilization, and quality of life at the primary care level can provide information on community groups requiring greater attention in program implementation. In addition to contributing to the development of empirical evidence on the CKG, the research results can also serve as a basis for community health centers (Puskemas) and policymakers in designing strategies to increase utilization coverage and strengthen follow-up on examination results.

Based on the description, this study aims to analyze the influence of social determinants on the utilization of the Free Health Check Program at the Surakarta City Community Health Center, analyze the influence of the utilization of the Free Health Check Program on the quality of life of the community, and develop a model of the direct and indirect influence of social determinants on the quality of life through the utilization of the Free Health Check Program.

METHOD

This study is an analytical observational study with a cross-sectional approach. The study population was the target community of the Free Health Check Program (CKG) in Surakarta City, with the study locations at 10 Community Health Centers selected using stratified random sampling. The independent variables include social determinants, the mediating variable is the utilization of the CKG Program, while the dependent variable is quality of life. Data were collected through direct interviews with respondents using a structured questionnaire. The questionnaire was used to obtain information on the respondents' sociodemographic characteristics, social determinants of health, utilization of health services, free health check participation, and quality of life. Data collection was conducted after obtaining informed consent from the respondents. The completed questionnaires were then checked for completeness and consistency before being entered into the dataset for statistical analysis. Data analysis included univariate analysis, bivariate analysis using simple multiple linear regression, and multivariate analysis using path analysis. The results of the analysis are presented in the form of path coefficients (β), 95% confidence intervals (95% CI), and p-values, with a significance level of $p < 0.05$.

RESULT

Table 1.
Descriptive Characteristics of Research Variables

Variables	n	Mean	SD	Min	Max
Age (years)	500	41.50	11.85	18	75
Gender	500	1.51	0.50	1	2
Marital status	500	1.87	0.61	1	4
Education	500	4.55	1.48	1	8
Work	500	5.80	2.26	1	9
JKN membership	500	1.05	0.21	1	2
Transportation	500	1.21	0.41	1	2
Distance to Health Center	500	1.39	0.60	1	3
Traveling time	500	1.69	0.75	1	4
Family support	500	22.00	3.23	12	30
Perception of benefits	500	20.89	3.20	11	29
Utilization of CKG (score)	500	21.81	4.03	9	30
Quality of life	500	52.76	10.64	19	74
Culture	500	20.44	3.03	12	28
Access to transportation	500	21.12	3.37	10	28
Availability of services	500	16.97	2.52	9	24
Health perception	500	16.71	2.55	11	25
Health needs	500	16.66	2.67	8	24

Among 500 respondents aged 18–75 years, the mean utilization score of the Free Health Check (CKG) Program was 21.81 ± 4.03 , while the mean quality of life score was 52.76 ± 10.64 . Key

social determinant scores included family support (22.00 ± 3.23), perceived benefits (20.89 ± 3.20), culture (20.44 ± 3.03), and transportation access (21.12 ± 3.37). Health service-related factors showed mean scores of 16.97 ± 2.52 for service availability, 16.71 ± 2.55 for health perception, and 16.66 ± 2.67 for health needs.

Table 2.
Bivariate Analysis

Variables	B	95% CI	p-value
Age	-0.019	-0.049 – 0.011	0.212
Gender	0.013	-0.696 – 0.723	0.971
Marital status	-0.025	-0.607 – 0.556	0.932
Education	0.441	0.204 – 0.678	<0.001
Work	-0.033	-0.191 – 0.124	0.678
National Health Insurance (JKN)	-0.120	-1.813 – 1.573	0.889
Transportation	-1.218	-2.082 – -0.354	0.006
Distance to Health Center	-0.792	-1.381 – -0.202	0.009
Traveling time	-0.856	-1.321 – -0.391	<0.001
Family support	0.475	0.373 – 0.576	<0.001
Perception of benefits	0.529	0.428 – 0.630	<0.001
Quality of life	0.188	0.159 – 0.217	<0.001
Culture	0.321	0.207 – 0.434	<0.001
Access to transportation	0.488	0.391 – 0.584	<0.001
Availability of services	0.423	0.287 – 0.559	<0.001
Health perception	0.158	0.019 – 0.296	0.026
Health needs	-0.149	-0.282 – -0.017	0.027

Bivariate analysis showed that education was positively associated with CKG utilization ($B = 0.441$; 95% CI: 0.204–0.678; $p < 0.001$). No significant associations were found for age ($B = -0.019$; 95% CI: -0.049–0.011; $p = 0.212$), gender ($B = 0.013$; 95% CI: -0.696–0.723; $p = 0.971$), marital status ($B = -0.025$; 95% CI: -0.607–0.556; $p = 0.932$), occupation ($B = -0.033$; 95% CI: -0.191–0.124; $p = 0.678$), or JKN membership ($B = -0.120$; 95% CI: -1.813–1.573; $p = 0.889$).

Significant negative associations were observed for transportation ($B = -1.218$; 95% CI: -2.082–-0.354; $p = 0.006$), distance to the Community Health Center ($B = -0.792$; 95% CI: -1.381–-0.202; $p = 0.009$), travel time ($B = -0.856$; 95% CI: -1.321–-0.391; $p < 0.001$), and health needs ($B = -0.149$; 95% CI: -0.282–-0.017; $p = 0.027$). Positive associations were found for family support ($B = 0.475$; 95% CI: 0.373–0.576; $p < 0.001$), perceived benefits ($B = 0.529$; 95% CI: 0.428–0.630; $p < 0.001$), culture ($B = 0.321$; 95% CI: 0.207–0.434; $p < 0.001$), transportation access ($B = 0.488$; 95% CI: 0.391–0.584; $p < 0.001$), service availability ($B = 0.423$; 95% CI: 0.287–0.559; $p < 0.001$), health perception ($B = 0.158$; 95% CI: 0.019–0.296; $p = 0.026$), and quality of life ($B = 0.188$; 95% CI: 0.159–0.217; $p < 0.001$). Significant variables were considered for multivariate analysis based on the conceptual framework.

Table 3.
Results of Structural Equation Modeling Analysis

Relationship between variables	B	95% CI	p-value
Service availability → Transportation access	0.320	0.217–0.422	<0.001
Distance from Health Center → Transportation Access	-1,858	-2,287–-1,429	<0.001
Travel time → Transportation access	-1,185	-1,526–-0,844	<0.001
Transportation access → CKG utilization	0.271	0.180–0.362	<0.001
Family support → Utilization of CKG	0.345	0.255–0.435	<0.001
Perception of benefits → Utilization of CKG	0.404	0.312–0.496	<0.001
Health needs → Utilization of CKG	-0.147	-0.253–-0.041	0.007
Service availability → CKG utilization	0.166	0.048–0.284	0.006
Access to transportation → Family support	0.215	0.134–0.297	<0.001
Access to transportation → Perceived benefits	0.249	0.169–0.329	<0.001
Access to transportation → Medical history	0.048	0.017–0.079	0.003
Health perception → Health needs	-0.106	-0.197–-0.014	0.023
Utilization of CKG → Quality of life	1,309	1,108–1,510	<0.001

The SEM model has an RMSEA value of 0.055, a CFI of 0.915, a TLI of 0.885, and an SRMR of 0.049. Overall, these indicators indicate that the model has an acceptable fit.

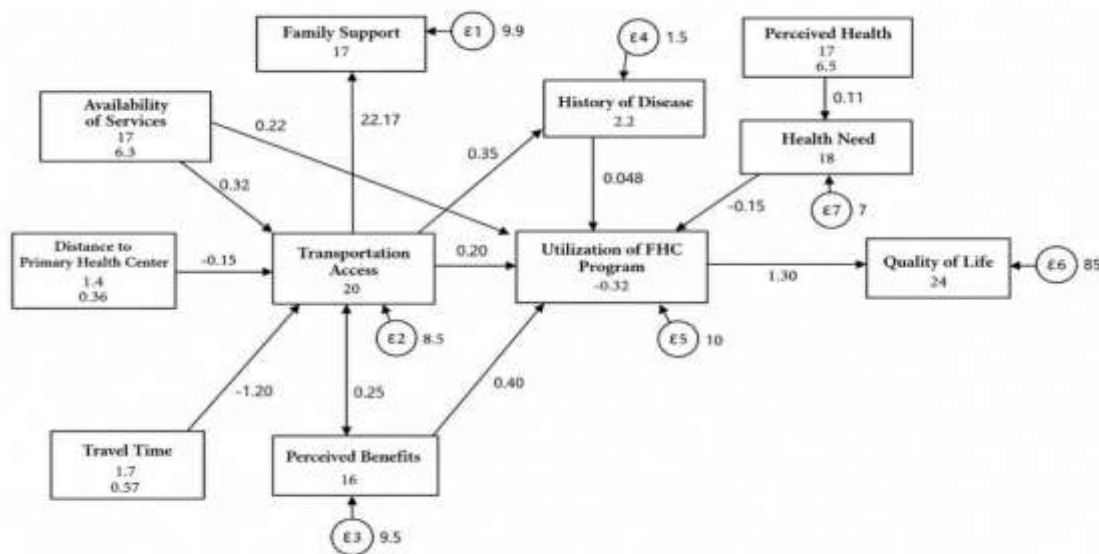


Figure 1. Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) analysis was conducted to examine the structural relationships between service determinants, access factors, psychosocial factors, health needs, utilization of the Free Health Check Program (CKG), and quality of life. The analysis was conducted on 500 respondents using the maximum likelihood estimation method.

The analysis results showed that service availability was positively and significantly related to transportation access ($B = 0.320$; 95% CI: 0.217–0.422; $p < 0.001$). In contrast, the distance to the Community Health Center showed a negative and significant relationship with transportation access ($B = -1.858$; 95% CI: -2.287–1.429; $p < 0.001$), and travel time also showed a negative and significant relationship ($B = -1.185$; 95% CI: -1.526–0.844; $p < 0.001$).

In the CKG utilization equation, transportation access was positively and significantly associated with CKG utilization ($B = 0.271$; 95% CI: 0.180–0.362; $p < 0.001$). Family support also showed a positive and significant association ($B = 0.345$; 95% CI: 0.255–0.435; $p < 0.001$). Similarly, perceived benefits had a positive and significant association with CKG utilization ($B = 0.404$; 95% CI: 0.312–0.496; $p < 0.001$). The availability of direct services was also positively associated with CKG utilization ($B = 0.166$; 95% CI: 0.048–0.284; $p = 0.006$). In contrast, health needs showed a negative and significant relationship with CKG utilization ($B = -0.147$; 95% CI: -0.253–0.041; $p = 0.007$).

Transportation access also showed a positive and significant relationship with family support ($B = 0.215$; 95% CI: 0.134–0.297; $p < 0.001$) and perceived benefits ($B = 0.249$; 95% CI: 0.169–0.329; $p < 0.001$). In addition, transportation access was positively associated with medical history ($B = 0.048$; 95% CI: 0.017–0.079; $p = 0.003$). Health perception showed a negative and significant relationship with health needs ($B = -0.106$; 95% CI: -0.197–0.014; $p = 0.023$).

The relationship between CKG utilization and quality of life demonstrated the strongest results in the model. CKG utilization was positively and significantly associated with quality of life ($B = 1.309$; 95% CI: 1.108–1.510; $p < 0.001$). These results indicate that a one-unit increase in CKG utilization score is statistically associated with a 1.309-unit increase in quality of life score, after accounting for the relationship structure in the model.

DISCUSSION

The research results show that utilization of the Free Health Check Program (CKG) is a process influenced by various factors, including access to services, family support, perceived benefits, and health needs. These findings demonstrate that the availability of free health services does not automatically guarantee public utilization. Service utilization is still influenced by conditions that enable individuals to access facilities, obtain social support, understand the benefits of screening, and perceive the need for health services. This pattern aligns with the Behavioral Model of Health Services Use, which places enabling and need factors as important determinants of health service utilization (Lederle et al., 2021).

Service availability was positively and significantly related to transportation access. Furthermore, distance from the community health center (Puskesmas) and travel time showed a negative and significant relationship with transportation access. These findings suggest that the characteristics of the service environment and geographic accessibility are important factors in shaping community access to health services. Although CKG is provided free of charge, communities still require access to service facilities. Therefore, eliminating financial barriers through the free program does not necessarily eliminate geographic and transportation barriers. This aligns with the concept of enabling factors in Andersen's model, which explains that health service utilization is influenced by the resources and environmental conditions that enable a person to obtain services (Babitsch et al., 2012; Lederle et al., 2021).

Transportation access further demonstrated a positive and significant relationship with CKG utilization. These results demonstrate that ease of access is one of the conditions that supports the community in utilizing preventive services. This finding aligns with research by Cheng et al. (2025) in Indonesia, which showed that health service utilization is influenced by individual characteristics and factors related to access and need for services. This is consistent with findings from a scoping review by Appiah-Kubi et al. (2025), which reported that transportation barriers such as unreliable transportation, cost, and travel distance consistently disrupt both the initiation and continuity of preventive and routine care across different populations. Similarly, Niloy and Kotval-K (2026) found that individuals experiencing transportation insecurity were significantly more likely to face disruptions in accessing in-person healthcare services, often relying on alternative delivery modes when conventional access was constrained. Therefore, CKG implementation needs to consider the aspect of service affordability, as free examinations still require the community's ability to reach health facilities.

Family support also showed a positive and significant relationship with CKG utilization. This finding suggests that the immediate social environment plays a role in encouraging individuals to utilize health services. Family support can include providing information, encouraging screening, mentoring, and assistance in reaching health facilities. This role becomes increasingly important in preventive services because individuals who have not yet experienced health problems may not perceive screening as an urgent need. This is supported by Alsadhan et al. (2025), who found that family involvement including having a family member with a history of illness or receiving encouragement from relatives shaped women's screening decisions and helped normalize discussions around preventive checkups within the household. These results align with the umbrella review by Le Bonniec et al. (2022), which showed that community participation in screening is influenced by individual and social factors, in addition to health worker and service.

Perceived benefits are one factor positively associated with CKG utilization. Individuals with better perceptions of the benefits of screening tend to have higher CKG utilization. This finding suggests that the decision to participate in preventive screening is not solely determined by the availability of services, but also by how individuals perceive their benefits. Health screenings can be viewed as a means to assess health conditions, identify risk factors, and obtain health information before

problems develop into more serious problems. Le Bonniec et al. (2022) also demonstrated that individual beliefs, perceptions, and understanding are important factors in participation in health screening.

The availability of direct services also showed a positive and significant relationship with CKG utilization. These results demonstrate that service system readiness remains a critical component even though the program was designed to be free of charge to the community. The availability of facilities, healthcare workers, examination processes, information, and follow-up on test results can influence the community's experience of using services. This finding reinforces the concept of enabling factors in Andersen's model, which states that service utilization is determined not only by individual characteristics but also by the conditions of the service system that enable the service to be used (Lederle et al., 2021).

Health needs showed a negative and significant relationship with CKG utilization. The direction of this relationship needs to be understood based on the coding and operational definition of the health needs variable used in the study. Therefore, these results cannot be directly interpreted as greater health needs leading to lower CKG utilization without considering the significance of the variable scores. In Andersen's model, health needs are one of the main components explaining health service utilization. The findings of this study indicate that health need characteristics still need to be considered in understanding CKG utilization patterns, especially since CKG is a service oriented towards early detection and prevention.

Health perception was also negatively and significantly related to health needs. These findings indicate a link between an individual's subjective assessment of their health condition and the health needs in the model. Individuals can form perceptions of service needs based on how they assess their current health condition. Within Andersen's framework, perceptions of health conditions are a relevant component in shaping service needs (Lederle et al., 2021). However, because this study used observational data, this relationship is best understood as a relationship within the research model and cannot be used to infer causality.

Transportation access also showed a positive and significant relationship with family support and perceived benefits. These findings suggest that the access factor in the model does not stand alone, but is interconnected with social factors and individual perceptions. More supportive access conditions can provide individuals with greater opportunities to obtain information, interact with health services, and receive support from their social environment. Thus, CKG utilization is a multidimensional phenomenon, influenced by the interaction between environmental factors, access, social support, and individual perceptions.

The main finding of the study was a positive and significant relationship between CKG utilization and quality of life. A regression coefficient of 1.309 (95% CI: 1.108–1.510; $p < 0.001$) indicated that an increase in CKG utilization scores was associated with an increase in quality of life scores. Conceptually, this relationship can be explained by the benefits of preventive services that enable individuals to identify health conditions and risk factors early. This information can serve as a basis for obtaining education, making behavioral changes, receiving monitoring, and obtaining follow-up services if health problems are identified.

The relationship between healthcare utilization and quality of life is also supported by previous research showing that primary healthcare services are associated with various health outcomes and quality of life in certain population groups. Kerse et al. (2021) demonstrated a link between variations in primary healthcare services and health outcomes and quality of life. These findings provide the basis for using quality of life as an outcome measure in assessing the benefits of healthcare services.

However, the relationship between CKG utilization and quality of life in this study needs to be interpreted with caution. Because the study used an observational design, the SEM results indicate a relationship consistent with the direction of the conceptual model, but cannot yet prove that CKG utilization causally improves quality of life. Other factors not included in the model may also contribute to quality of life. Therefore, further longitudinal research is needed to strengthen the evidence regarding the temporal relationship between CKG utilization and changes in quality of life.

Overall, the study results indicate that utilization of the CKG is not solely determined by the program's existence and the exemption from screening fees. Access to transportation, service availability, family support, perceived benefits, and health needs play a role in shaping program utilization. This finding aligns with research by Cheng et al. (2025) on the determinants of health service utilization in Indonesia and the umbrella review by Le Bonniec et al. (2022) on the determinants of screening participation. Therefore, increasing CKG coverage in Surakarta City requires an approach that focuses not only on providing free screenings but also on service accessibility, family involvement, communication about the benefits of early detection, and the readiness of health care facilities.

CONCLUSION

The results of the study indicate that utilization of the Free Health Check Program (CKG) is influenced by various factors related to service access, social support, perception, health needs, and service availability. The results of the SEM analysis indicate that transportation access, family support, perceived benefits, and service availability are positively and significantly related to CKG utilization, while health needs are negatively and significantly related to CKG utilization. Transportation access is also significantly related to family support and perceived benefits, while service availability, distance to the Community Health Center, and travel time are significantly related to transportation access.

CKG utilization was also positively and significantly associated with community quality of life. Each one-unit increase in CKG utilization score was associated with a 1.309-point increase in quality of life (95% CI: 1.108–1.510; $p < 0.001$). The evaluation results showed that the SEM model had a sufficient fit to the data (RMSEA = 0.055; CFI = 0.915; TLI = 0.885; SRMR = 0.049).

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