Family Support as a Determinant of Non-Communicable Disease Integrated Service Post Utilization Behavior

Aina Shofi Salsabila Nur Amalia[1], Nanda Tri Rahmatika[2], Saptandia Wulan Cahyaning Lestari[1], Rangga Gama Adyatma[1]
[1]Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia; [2]Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia
Correspondence: **Aina Shofi Salsabila Nur Amalia**: Kampus C UNAIR, Mulyorejo, Surabaya, Indonesia; aina.ofi.salsabila-2023@fkm.unair.ac.id

ABSTRACT
Non-Communicable Diseases (NCDs) increasingly affect not only the elderly but also individuals of productive age (15–59 years). The Integrated Development Post for Non-Communicable Diseases (*Posbindu PTM*) serves as a community-based strategy for early detection and monitoring of NCD risk factors. This study aimed to analyze factors associated with the utilization behavior of *Posbindu PTM* services. A quantitative cross-sectional design was employed, involving 68 respondents selected through simple random sampling. The questionnaire used had been tested for validity and reliability. Data were analyzed descriptively and inferentially using the Chi-square test. The results showed no significant association between education, occupation, knowledge, attitudes, availability of facilities, access to *Posbindu PTM*, and cadre support with utilization behavior. However, a significant association was found between family support and the utilization of Posbindu PTM services. As conclusion, family support plays an important role in encouraging individuals to actively utilize *Posbindu PTM* services. Comprehensive education targeting families is therefore needed to increase awareness of the importance of utilizing *Posbindu PTM* services.
Keywords: non-communicable diseases; health service utilization behavior; the integrated development post for non-communicable diseases

INTRODUCTION
Non-Communicable Diseases (NCDs) are diseases that cannot be transmitted from one person to another and generally develop slowly over a prolonged period, thus classified as chronic conditions, as stipulated in the Regulation of the Minister of Health Number 71 of 2015 concerning the Control of Non-Communicable Diseases [1]. NCDs constitute a major cause of morbidity and mortality in Indonesia. Coronary heart disease ranks as the leading cause of death, followed by cancer, diabetes mellitus with complications, and Chronic Obstructive Pulmonary Disease (COPD) [2]. Epidemiological trends indicate that NCDs are no longer confined to the elderly population but are increasingly affecting individuals of productive age (15–59 years), thereby generating substantial social and economic burdens for families and the health system.

The rising prevalence of NCDs necessitates comprehensive prevention and control strategies, particularly through early detection of risk factors. One of the government's community-based initiatives is the Integrated Non-Communicable Disease Post (*Pos Pembinaan Terpadu Penyakit Tidak Menular/Posbindu PTM*), which is expected to be established in every village or subdistrict and targets individuals aged ≥15 years [3]. Posbindu PTM represents a form of Community-Based Health Effort (*Upaya Kesehatan Berbasis Masyarakat/UKBM*) aimed at early detection and monitoring of NCD risk factors through blood pressure measurement, blood glucose testing, body mass index (BMI) assessment, interviews on risk behaviors, and health education promoting healthy lifestyles [4]. As a *UKBM*, *Posbindu PTM* is developed based on community needs and managed by, from, for, and with the community, under the guidance of the health sector and in collaboration with cross-sectoral stakeholders [5].

The implementation of *Posbindu PTM* emphasizes community participation in routine and periodic screening and monitoring of NCD risk factors. Follow-up actions are conducted in the form of counseling and referral to primary health care facilities when risk factors or suspected conditions are identified [6]. Through this mechanism, *Posbindu PTM* is expected to contribute to the control of NCDs among both productive-age and elderly populations.

Posbindu PTM activities are conducted at least once a month at a location agreed upon by the community. The service is organized into five sequential stages: (1) registration and recording of the National Identification Number (*NIK*) and participant data; (2) interview on NCD risk factors; (3) measurement of height, weight, and calculation of BMI; (4) examination of blood pressure and blood glucose; and (5) identification of risk factors, provision of health education, guidance for follow-up, and documentation of service results [7]. These activities may be carried out by trained community health volunteers (cadres) with supervision from health professionals.

From a behavioral perspective, health behavior is determined by three major factors: predisposing factors (such as knowledge, attitudes, beliefs, values, and perceptions); enabling factors (including availability and accessibility of health facilities and resources); and reinforcing factors (such as support from health workers, family members, and community leaders as reference groups) [8]. This theoretical framework is relevant for analyzing health service utilization behavior, including participation in *Posbindu PTM*, as individuals' decisions to engage in preventive services are shaped by the interaction of these determinants.

Kedewan Village is one of the villages within the working area of Kedewan Community Health Center (*Puskesmas Kedewan*), Kedewan Subdistrict, Bojonegoro Regency, East Java Province. Based on the 2019 Minimum Service Standards (*SPM*) report of *Puskesmas Kedewan*, the coverage of health screening among individuals aged 15–59 years reached only 16% of the 100% target. Furthermore, among the five villages within its jurisdiction, only two *Posbindu PTM* units are available [9]. This condition reflects the suboptimal utilization of early detection services for NCDs at the community level. Therefore, this study aims to analyze the factors associated with the utilization behavior of *Posbindu PTM* services in Kedewan Village, Kedewan Subdistrict, Bojonegoro Regency, in order to provide an evidence-based foundation for strategies to enhance community participation in NCD early detection programs.

METHODS
This study was conducted from October to December 2020 in Kedewan Village, Kedewan Subdistrict, Bojonegoro Regency. A quantitative study with a cross-sectional design was employed to examine factors associated with the utilization behavior of *Posbindu PTM* services. The study population comprised residents aged 15–59 years. A sample of 68 respondents was obtained using a simple random sampling technique, with the sample size calculated based on the Slovin formula. Data were collected using a structured questionnaire as the primary research instrument.

The dependent variable was the utilization behavior of *Posbindu PTM* services. Independent variables included knowledge, attitudes, education level, employment status, availability of *Posbindu PTM* facilities, access to *Posbindu PTM*, family support, and cadre support. Knowledge was defined as respondents' understanding of *Posbindu PTM* services. Attitude referred to respondents' perceptions and responses regarding the utilization of *Posbindu PTM* services. Education was defined as the highest level of formal schooling completed by the respondent. Employment referred to respondents' formal or informal occupational status. Access was measured based on travel distance and the perceived level of difficulty in reaching *Posbindu PTM* services. Availability of facilities referred to the presence of adequate infrastructure and equipment supporting *Posbindu PTM* activities, including service availability and sufficient medical tools. Family support was defined as the involvement of family members as sources of information and motivation to utilize *Posbindu PTM* services. Cadre support referred to the involvement of community health volunteers as sources of information and motivation for service utilization.

Prior to data collection, the questionnaire underwent validity and reliability testing. Items that did not meet validity criteria were excluded from the final instrument. Reliability testing was performed using Cronbach's alpha, with a coefficient greater than 0.6 indicating acceptable reliability. Descriptive analysis was conducted to describe the characteristics of the study variables. Inferential analysis was performed to examine the relationships between the dependent and independent variables, using Chi-square test.

Table 1. Distribution of respondent characteristics

Variable	Frequency	Percentage
Utilization of Posbindu PTM		
Yes	40	58.8
No	28	41.2
Education		
Low	40	58.8
High	28	41.2
Employment status		
Unemployed	41	60.3
Employed	27	39.7
Knowledge		
Good	65	95.6
Poor	3	4.4
Attitude		
Good	38	55.9
Poor	30	44.1
Availability of facilities		
Adequate	23	33.8
Inadequate	45	66.2
Access to Posbindu PTM		
Easy	33	48.5
Difficult	35	51.5
Family support		
Supportive	32	47.1
Not Supportive	36	52.9
Cadre support		
Supportive	39	57.4
Not supportive	29	42.6

RESULTS

Based on the results of the descriptive analysis, the distribution of respondent characteristics is presented in Table 1. As shown in Table 1, the majority of respondents reported utilizing *Posbindu PTM* services (58.8%). Most respondents had a low level of education (58.8%) and were unemployed (60.3%). Nearly all respondents demonstrated good knowledge (95.6%), and more than half exhibited a positive attitude toward *Posbindu PTM* utilization (55.9%). A substantial proportion of respondents indicated that facilities were inadequate (66.2%) and that access to *Posbindu PTM* was difficult (51.5%). More than half reported lacking family support for utilizing *Posbindu PTM* services (52.9%), whereas the majority perceived cadre support as supportive (57.4%).

Bivariate analysis using the Chi-square test was conducted to examine the association between *Posbindu PTM* utilization behavior and the independent variables. The results are presented in Table 2. Family support was significantly associated with *Posbindu PTM* utilization behavior (p = 0.000). The odds ratio (OR) of 6.81 indicates that respondents who received supportive family involvement were 6.81 times more likely to utilize *Posbindu PTM* services compared with those who did not receive family support. In contrast, education, employment, knowledge, attitude, availability of facilities, access to *Posbindu PTM*, and cadre support demonstrated p-values greater than 0.05, indicating no statistically significant association with *Posbindu PTM* utilization behavior in this study.

Table 2. The results of Chi-square test

Variable	Utilized		Not utilized		p-value	OR	95% CI
	Frequency	Percentage	Frequency	Percentage			Lower–Upper
Education					0.077	0.4	0.413–1.12
Low	20	50.0	20	71.4			
High	20	50.0	8	28.6			
Employment					0.574	0.752	0.278–2.03
Unemployed	23	57.5	18	64.3			
Employed	17	42.5	10	35.7			
Knowledge					0.138	0.188	0.001–3.79
Good	37	92.5	28	100.0			
Poor	3	7.5	0	0.0			
Attitude					0.861	0.917	0.346–2.43
Good	22	55.0	16	57.1			
Poor	18	45.0	12	42.9			
Availability of facilities					0.066	0.385	0.137–1.08
Adequate	10	25.0	13	46.4			
Inadequate	30	75.0	15	53.6			
Access to *Posbindu PTM*					0.093	0.431	0.161–1.16
Easy	16	40.0	17	60.7			
Difficult	24	60.0	11	39.3			
Family support					0.000*	6.81	2.24–20.7
Supportive	26	65.0	6	21.4			
Not supportive	14	35.0	22	78.6			
Cadre support					0.977	1.01	0.382–2.69
Supportive	23	57.5	16	57.1			
Not supportive	17	42.5	12	42.9			

DISCUSSION

There was no statistically significant association between education level and the utilization behavior of *Posbindu PTM*. This finding is consistent with Rusdiyanti (2017), who reported no relationship between education and visiting behavior to *Posbindu PTM* [10]. Knowledge is closely related to educational attainment, as individuals with higher education are generally assumed to possess greater knowledge [11]. However, higher education must be accompanied by adequate understanding of *Posbindu PTM* services to foster awareness and encourage service utilization [12]. Educational level influences an individual's capacity to absorb health-related information; individuals who comprehend the risks of non-communicable diseases (NCDs) may be more inclined to utilize *Posbindu PTM* services [13]. Nevertheless, in this study, education did not demonstrate a significant effect.

Employment status was also not significantly associated with *Posbindu PTM* utilization behavior. This result aligns with Nasruddin (2017), who found no relationship between employment and utilization of *Posbindu PTM* [14]. In many communities, working hours coincide with *Posbindu PTM* service schedules, limiting the opportunity to attend [15]. Although unemployed individuals theoretically have greater time availability, without sufficient awareness and understanding of the benefits of *Posbindu PTM*, they may still choose not to attend [14].

No significant association was identified between knowledge and *Posbindu PTM* utilization. This finding is in accordance with Mardhiyanti et al. (2019), who reported no relationship between knowledge and *Posbindu PTM* utilization [16]. However, other studies by Rusdiyanti (2017), Tanjung et al. (2018), Mashdariyah & Rukanah (2019), and Ginting et al. (2020) demonstrated a significant association between knowledge and service utilization [10,12,17,18]. The discrepancy may reflect differences in contextual or predisposing factors influencing health behavior that were not fully captured in the present study.

Attitude likewise showed no significant relationship with *Posbindu PTM* utilization behavior. This result is consistent with Wirata and Istianti (2020) [19], although other studies have reported significant associations [18,20]. While attitude is an important determinant of health behavior, a positive attitude does not necessarily translate into actual behavior without reinforcing or enabling factors [20].

The availability of facilities was not significantly associated with service utilization. Kurnianingsih et al. (2019) similarly reported no relationship, attributing this to incomplete facilities at *Posbindu PTM* sites [21]. Conversely, Putri (2022) found a significant association between facility availability and utilization [22]. Adequate infrastructure and equipment are essential for optimal service delivery [23], and inadequate facilities may reduce community enthusiasm to attend *Posbindu PTM* [24]. Despite this theoretical relevance, facility availability was not a significant predictor in this study.

Access to *Posbindu PTM* was also not significantly associated with utilization behavior. Anggraeni (2020) reported similar findings, suggesting that limited knowledge may be a more decisive factor even when services are geographically accessible [25]. Accessibility in this study included travel distance and ease of reaching the service location. Distance, transportation availability, and travel time have been shown to influence service utilization in other settings [26], but no such association was observed here.

In contrast, family support demonstrated a statistically significant association with *Posbindu PTM* utilization behavior. Family members can act as strong motivators by providing encouragement, accompanying individuals to services, or reminding them of scheduled activities. Family involvement plays a crucial role in preventing or delaying chronic diseases through regular health monitoring at *Posbindu PTM* [27]. Stronger family support has been associated with increased utilization of *Posbindu PTM* services [28]. In this study, respondents who received supportive family involvement were 6.81 times more likely to utilize *Posbindu PTM* compared with those without family support.

Cadre support did not show a significant association with service utilization in this study. This finding differs from studies by Purdiyani (2016), Rusdiyanti (2018), and Mashdariyah & Rukanah (2019), which reported significant relationships between cadre support and utilization behavior [10,17,29]. Health cadres function as intermediaries between healthcare providers and the community, and effective communication may enhance compliance with health services [30]. Although theoretically important, cadre support was not a significant determinant in this context.

CONCLUSION

Among the variables examined, only family support demonstrated a statistically significant association with *Posbindu PTM* utilization behavior. Respondents who received supportive family involvement were substantially more likely to utilize *Posbindu PTM* services. Education, employment, knowledge, attitude, facility availability, access, and cadre support were not significantly associated with utilization behavior in this study. These findings underscore the central role of family support as a reinforcing factor in promoting community participation in *Posbindu PTM* services. Strengthening family-based health education and engagement strategies may enhance awareness and encourage more consistent utilization of preventive health services.

Ethical consideration, competing interest and source of funding

-This study received ethical approval from the Ethics Committee of the Faculty of Health Sciences, Universitas Jenderal Soedirman, in 2020. Ethical principles were upheld throughout the research process, including voluntary participation and the protection of respondent confidentiality.
-There is no conflict of interest related to this publication.
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