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National Health Insurance Literacy and Health-Seeking Behaviour among Senior High School Adolescents in a Semi-Urban Area: A Cross-Sectional Study in North Sulawesi, Indonesia

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Abstract

Background: Being enrolled in Indonesia's National Health Insurance scheme (Jaminan Kesehatan Nasional, JKN) does not automatically mean that adolescents can use their membership appropriately. Health insurance literacy may influence decisions about where to seek care. **Objective:** This study assessed JKN literacy and health-seeking behaviour among senior high school adolescents and examined the association between them. **Methods:** An analytic cross-sectional study was conducted among Grade 10 and 11 students at SMA Negeri 1 Airmadidi, North Minahasa Regency, in July 2026. JKN literacy was measured using 20 objective knowledge items (score range 0–20) and categorised at the sample median (≤14 vs >14). Health-seeking behaviour was assessed for the most recent illness episode. Associations were tested using Pearson's chi-square or Fisher's exact test, as appropriate (two-sided $\alpha = 0.05$). **Results:** Among 141 respondents, 66.0% reported active JKN membership. The median literacy score was 14/20, and 53.9% scored ≤14. Literacy was associated with the main source of treatment (Fisher's exact test, $p = 0.008$) and reported use of JKN entitlements at formal facilities ($\chi^2 = 7.900$, $df = 2$, $p = 0.019$). No statistically significant association was observed with the first action taken when symptoms appeared ($p = 0.095$), information sources ($p = 0.126$), or timing of care-seeking ($p = 0.829$). **Conclusion:** JKN literacy may be more closely related to decisions about care pathways and use of membership entitlements than to adolescents' initial response to symptoms. These unadjusted cross-sectional findings require confirmation through multivariable analyses and intervention studies. School-based JKN education involving parents or guardians warrants evaluation.

Keywords: Health Insurance Literacy, National Health Insurance, Health-Seeking Behaviour, Adolescents, Indonesia

1. INTRODUCTION

Universal health coverage (UHC) requires people to obtain quality health services without experiencing financial hardship. Indonesia has pursued this commitment through the National Health Insurance scheme (Jaminan Kesehatan Nasional, JKN), administered by BPJS Kesehatan since 2014 [1,2]. Although membership has expanded, registration is only an administrative starting point. Members who do not understand the benefit package, referral mechanism, and their rights and obligations may struggle to translate enrolment into effective service use. Recent national evidence indicates that many JKN members do not use their membership for outpatient care, with individual and structural barriers both contributing to underutilisation [3].

Adolescents deserve particular attention. At ages 15–17, decisions about health may increasingly involve adolescents themselves, although parental guidance often remains substantial. Health insurance literacy can be understood as the ability to obtain, comprehend, and apply information about enrolment, benefits, provider access, referrals, and members' rights and obligations to make informed decisions [4]. In principle, this capability may help adolescents and their families turn membership into appropriate use of health services.

Research on JKN in Indonesia has largely focused on adults, households, financing, satisfaction, and service utilisation. Evidence specifically examining JKN literacy and health-seeking behaviour among school-going adolescents, particularly outside Java, remains limited. This study aimed to describe JKN literacy, describe health-seeking behaviour and reported barriers, and examine associations between JKN literacy and health-seeking behaviour.

Andersen's Behavioural Model of Health Services Use informed the conceptual approach, with JKN literacy considered a potential enabling capability for activating membership as an enabling resource [5,6].

2. METHODS

1) Design, setting, and period

This analytic cross-sectional study was conducted in July 2026 at SMA Negeri 1 Airmadidi, North Minahasa Regency, North Sulawesi Province, Indonesia. The school is in a semi-urban area within reach of first-level health facilities (fasilitas kesehatan tingkat pertama, FKTP) and hospitals [7].

2) Population and sampling

The manuscript records the study population as 1,157 Grade 10 and 11 students aged 15–17 years. The minimum sample size was calculated using Slovin's formula with a 5% margin of error, yielding 298 students. Proportionate stratified random sampling was planned using the school's official student register. During data collection, 141 fully completed questionnaires were returned (47.3% of the stated target) and analysed. The shortfall was attributed to time constraints and limited access to classes. Eligibility criteria were age 15–17 years, active enrolment during the study period, willingness to participate, and parental or guardian consent. Incomplete questionnaires were excluded.

3) Instrument and variables

Data were collected using a structured, self-administered questionnaire in Indonesian. Section A covered age, sex, grade, JKN membership status, parental education and occupation, household income, distance to the usual FKTP, illness frequency, self-rated health, and parental or guardian accompaniment during care-seeking. Section B measured JKN literacy with 20 factual items answered as true, false, or "don't know." Correct answers scored 1 and other answers scored 0, producing a total score of 0–20. Section C assessed behaviour during the most recent illness episode, self-medication, and access barriers. Section D covered perceptions and beliefs related to health services and JKN.

The questionnaire was reviewed by experts for content validity and pilot-tested with adolescents of similar characteristics to assess readability. Internal consistency of the 20 literacy items was assessed using Cronbach's alpha [8].

4) Outcome definitions

The outcomes were six components of health-seeking behaviour during the most recent illness episode: first action after symptoms appeared, information sources consulted, timing of care-seeking, main place or source of treatment, use of JKN when receiving care at a formal facility, and reasons for not using formal health services. Self-medication was not classified as appropriate or inappropriate because such criteria had not been specified before the study. Response categories were retained as nominal variables as reported by respondents.

5) Statistical analysis

Analyses were performed using IBM SPSS Statistics version 25. Literacy scores were summarised using the mean, median, standard deviation, skewness, and kurtosis. Literacy was categorised at the sample median (≤14 vs >14). Pearson's chi-square test was used when expected cell counts met the stated assumptions, Fisher's exact test was used when sparse cells required it. Cramér's V was reported for chi-square associations where available. All tests were two-sided, with $\alpha = 0.05$. P values from 0.05 to 0.10 were reported transparently but not treated as statistically significant.

3. RESULTS AND DISCUSSION

Results

1) Characteristics of the respondents

A total of 141 respondents were included. Most were 15 years old (63.1%) and female (63.1%), 51.8% were in Grade 10 and 48.2% in Grade 11. Active JKN membership was reported by 66.0%, while 4.3% reported inactive membership and 29.8% reported no membership or did not know their status (Table 1). Membership-related difficulties included not knowing one's membership status (n = 21, 14.9%) and not knowing how to manage membership matters (n = 16, 11.3%), premium arrears (n = 3, 2.1%) and a lost card (n = 1, 0.7%) were less common. Most respondents were always accompanied by a parent or guardian when seeking care (84.4%), and 55.3% did not know the distance from home to their usual FKTP.

Table 1. Characteristics of respondents (N = 141)

Characteristic	Category	n	%
Age	15 years	89	63.1
	16 years	43	30.5
	17 years	9	6.4
Sex	Male	52	36.9
	Female	89	63.1
Grade	10	73	51.8
	11	68	48.2
JKN membership status	Active	93	66.0
	Inactive	6	4.3
	None / unknown	42	29.8
Parental accompaniment	Always	119	84.4
	Sometimes	20	14.2
	Never	2	1.4
Home-to-FKTP distance	<1 km	16	11.3
	1–5 km	31	22.0
	5 km	16	11.3
	Don't know	78	55.3

Source: primary data. FKTP = first-level health facility.

2) Level of JKN literacy

JKN literacy scores ranged from 0 to 20, with a mean of 12.09 (SD = 7.62) and a median of 14 (Table 2). The distribution was negatively skewed (skewness = −0.466) and relatively flat (kurtosis = −1.339). A total of 76 respondents (53.9%) scored ≤14 and 65 (46.1%) scored >14. Because the cutoff is sample-relative, it describes the distribution rather than an absolute threshold for adequate literacy. The reported interquartile range was 16 points, suggesting substantial heterogeneity.

Table 2. Descriptive statistics of JKN literacy scores (N = 141)

Statistic	Value
Mean	12.09
Median	14.00
Standard deviation	7.62
Minimum–maximum	0–20
Interquartile range (IQR)	16

Statistic	Value
Skewness	−0.466
Kurtosis	−1.339
Score ≤14, n (%)	76 (53.9)
Score >14, n (%)	65 (46.1)

Source: primary data.

The reported internal consistency of the 20 items was high (Cronbach's alpha = 0.967), with corrected item-total correlations from 0.573 to 0.843. Correct responses were most frequent for registration through official BPJS Kesehatan channels (79.4%) and least frequent for premium obligations of non-PBI members (49.6%). Delivery care, distinctions between PBI and non-PBI membership, and referral-letter validity were also correctly answered by only about half of respondents (Table 3).

Table 3. Correct responses to JKN literacy items (N = 141)

Code	Item	Correct, n	%
B1	Registration through official BPJS Kesehatan channels	112	79.4
B2	JKN includes PBI and non-PBI members	76	53.9
B3	Premium obligations of non-PBI members	70	49.6
B4	Checking membership status	91	64.5
B5	Checking status through official channels / Mobile JKN	91	64.5
B6	Types of services covered by JKN	92	65.2
B7	Inpatient care can be covered	91	64.5
B8	Delivery care according to regulations	74	52.5
B9	Existence of excluded services	82	58.2
B10	Financing according to diagnosis / medical indication	78	55.3
B11	Routine care through FKTP before referral	78	55.3
B12	Referral based on medical indication	91	64.5
B13	Validity period of referral letter	77	54.6
B14	FKTP selection according to the mechanism	78	55.3
B15	Hospital access without referral under certain conditions	81	57.4
B16	Members' right to services according to regulations	83	58.9
B17	Submitting member complaints	86	61.0
B18	Complying with membership / premium regulations	81	57.4
B19	Showing identity when accessing services	90	63.8
B20	Following service and referral procedures	88	62.4

Source: primary data.

3) Health-seeking behaviour

Most respondents (66.7%) first informed a parent or guardian when symptoms appeared. The internet or health applications were the most frequently reported information source (49.3%). Nearly half sought help within one day (45.1%). However, self-treatment at home was the most frequently reported main source of treatment (29.2%), followed by a community health centre or other FKTP (22.2%) and a hospital (16.0%).

Regarding JKN use, 32.6% reported using JKN when seeking care, while 54.9% did not know or could not recall whether it had been used. The most common reported reason for not using formal health facilities was perceiving the illness as not severe (36.8%), followed by not knowing the procedures (16.0%) and waiting time or queues (13.2%). The pattern suggests that

family influence, digital information, self-treatment, and perceptions of illness severity and service accessibility are relevant features of adolescents' reported care-seeking (Table 4).

Table 4. Health-seeking behaviour and reported barriers to accessing health services

Component	Main category	n	%
First action	Informing parents/guardians	96	66.7
	Searching internet/social media	18	12.5
	Other actions	30	20.8
Information source	Internet/health apps/Google	71	49.3
	Parents/family	38	26.4
	Health workers	22	15.3
	Did not seek information	13	9.0
Timing	<1 day	65	45.1
	1–3 days	45	31.3
	≥4 days / did not seek help	26	18.1
	No illness episode	8	5.6
Main treatment source	Self-treatment at home	42	29.2
	Community health centre/FKTP	32	22.2
	Hospital	23	16.0
	Pharmacy/private doctor/clinic	39	27.1
	No treatment/traditional medicine	8	5.6
JKN use	Used JKN	47	32.6
	Did not use JKN	11	7.6
	Don't know / don't remember	79	54.9
	Did not use a formal facility	7	4.9
Barriers	Illness not perceived as severe	53	36.8
	Did not know procedures	23	16.0
	Waiting time / queues	19	13.2
	Cost	16	11.1
	Distance / transportation	13	9.0
	Other reasons	20	13.9

Source: primary data. Category denominators and wording must be checked against the original SPSS output before submission.

4) Association between JKN literacy and health-seeking behaviour

Bivariate analyses indicated an association between JKN literacy category and the main place or source of treatment (Fisher's exact test, $p = 0.008$), as well as reported use of JKN at a formal facility ($\chi^2 = 7.900$, $df = 2$, $p = 0.019$, Cramér's $V = 0.24$, linear trend test $p = 0.008$). No statistically significant association was found for the first action taken when symptoms appeared ($p = 0.095$), information sources ($\chi^2 = 5.723$, $df = 3$, $p = 0.126$), or timing of care-seeking ($p = 0.829$). The association with reasons for not using formal facilities did not meet the 0.05 threshold ($p = 0.058$) and should not be interpreted as statistically significant (Table 5).

Table 5. Association between JKN literacy category (≤14 vs >14) and health-seeking behaviour (N = 141)

Component	Test	Test value	df	p
First action when symptoms appeared	Fisher's exact	8.791	—	0.095
Information sources	Chi-square	5.723	3	0.126
Timing of care-seeking	Fisher's exact	0.882	—	0.829
Main place/source of treatment	Fisher's exact	17.421	—	0.008
Use of JKN at formal facility	Chi-square	7.900	2	0.019
Reasons for not using formal facilities	Fisher's exact	12.983	—	0.058

Source: primary data. Verify test statistics and exact-test settings against the original SPSS output, Fisher's exact tests for tables larger than 2×2 may require exact or Monte Carlo procedures.

Discussion

The findings suggest a gap between reported JKN membership and knowledge of how to use the scheme. Although 66.0% reported active membership, the median literacy score was 14/20 and 53.9% scored at or below that sample median. Since this cutoff is relative to the study sample, it should not be interpreted as an established threshold for adequate or inadequate literacy. Nevertheless, the score range (0–20) and the fact that 29.8% reported no membership or were unsure of their status indicate that enrolment does not necessarily entail practical readiness to use services. National evidence has similarly documented underutilisation of JKN membership for outpatient care [3].

Adolescents' position within the family may help explain this gap. Most respondents (84.4%) were always accompanied by a parent or guardian when seeking care. Parents may therefore remain central to decisions about when to seek help, where to go, and how services are financed. Adolescents may be registered as members without independently checking membership status, selecting an FKTP, arranging referrals, or using Mobile JKN. The item-level pattern is consistent with this possibility, but the descriptive data do not establish why respondents answered particular items correctly or incorrectly.

The observed associations with treatment source ($p = 0.008$) and use of JKN at formal facilities ($p = 0.019$) are conceptually consistent with Andersen's Behavioural Model, in which service utilisation reflects predisposing, enabling, and need-related factors [5,6]. Membership can be viewed as an enabling resource, while literacy may help a member or family understand how to activate it—for example, by checking membership status, identifying the appropriate first-contact facility, understanding covered services, and following referral procedures. However, the present bivariate results do not show that literacy independently predicts these outcomes.

The first response to symptoms may be shaped by perceived severity, previous experiences, family norms, and advice from close relatives rather than by knowledge of insurance procedures. The timing of care-seeking may similarly depend on symptom urgency, transport, family availability, and perceived need. A systematic review of longitudinal studies using Andersen's model found that determinants of healthcare use vary by population and context, with need-related factors often important [9]. The absence of statistically significant associations for initial action, information source, and timing does not prove that JKN literacy is irrelevant, it indicates that this study did not detect associations for those outcomes.

Parents may act as decision-makers, information sources, and practical enablers of access, including transport and financial support. School interventions aimed only at students may have limited effects if parents or guardians remain responsible for membership administration and care decisions. Family-inclusive education is therefore a plausible approach to evaluate, rather than a proven intervention based on these data.

The association between literacy and reported reasons for not using formal facilities did not meet the prespecified significance threshold ($p = 0.058$), and should not be presented as an established relationship. Larger samples may help distinguish knowledge-related barriers, such as unfamiliarity with procedures, from structural barriers, including distance, waiting time, service availability, and perceived quality. National research also indicates that socioeconomic and health-system characteristics are relevant to JKN utilisation [3].

School-based JKN education could move beyond general awareness toward applied skills: checking membership status, distinguishing PBI and non-PBI membership, understanding benefits and exclusions, identifying the role of FKTP, navigating referrals, and using official BPJS Kesehatan channels and Mobile JKN. The lowest-scoring topics in this sample—non-PBI premium obligations, referral validity, FKTP selection, and financing according to diagnosis or medical indication—could inform curriculum design. Potential delivery partners include schools, FKTP, BPJS Kesehatan, and parent-teacher groups. The effectiveness of these activities should be assessed empirically.

1) Strengths and limitations

Strengths include the use of 20 objective knowledge items and the assessment of health-seeking behaviour across several stages rather than through a single indicator. Several limitations warrant caution. First, the cross-sectional design precludes causal inference and does not establish temporal ordering. Second, the study was conducted at one school and included 141 respondents, below the stated target of 298, limiting generalisability and potentially reducing power for outcomes with multiple categories. Third, the analysis was bivariate, JKN membership status, parental education and income, access to FKTP, and perceived need were not controlled. This is especially important because use of JKN presupposes active membership, while 29.8% reported no membership or uncertainty about their status. Fourth, six hypothesis tests were conducted without adjustment for multiple comparisons. Under a conservative Bonferroni threshold ($\alpha \approx 0.0083$), the treatment-source association (reported $p = 0.008$) is the only result near or below the adjusted threshold, subject to rounding and verification of the exact p value. Fifth, self-reported behaviour and membership status may be affected by recall and social-desirability bias. Sixth, the very high Cronbach's alpha (0.967) may reflect item redundancy as well as strong internal consistency. Finally, median-based categorisation divides the sample rather than establishing an absolute standard of literacy.

Future studies should recruit students from multiple schools or regions, obtain a larger sample, and use multivariable methods suited to the outcome structure. Logistic regression may be appropriate for prespecified binary outcomes, multinomial or ordinal models may be preferable for outcomes with more than two nominal or ordered categories. Longitudinal studies and evaluated school-based interventions would provide stronger evidence about whether improving JKN literacy changes service use.

5. CONCLUSION

Reported active JKN membership was not invariably accompanied by strong knowledge of how to use the scheme. In this sample, 66.0% reported active membership, while the median literacy score was 14/20 and 53.9% scored at or below the sample median. JKN literacy category was associated with the main place or source of treatment and reported use of JKN at formal facilities, but not with the first action taken when symptoms appeared, information

sources, or timing of care-seeking. The findings suggest that literacy may be more closely related to navigating care pathways and using membership entitlements than to the initial response to symptoms. Because the analysis was cross-sectional and bivariate, the associations cannot be considered causal or independent. School-based education should emphasise practical JKN skills, engage parents or guardians and local health-system partners, and be evaluated using larger samples and stronger analytic designs.

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