



Family Support and Herbal-Use Practices among Senior High School Students with Previous Herbal Use

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Abstract

Background: Family practices may shape adolescents' use of herbal products, but greater use does not necessarily indicate safe or evidence-based use. **Objective:** To examine the association between family support for herbal use and herbal-use practice scores among senior high school students with previous herbal-use experience in Ambon, Maluku. **Methods:** This cross-sectional study included 89 purposively selected students at SMA Negeri 12 Ambon in November 2025. Family support and herbal-use practices were assessed using separate eight-item, four-point Likert questionnaires (score range, 8–32). Internal consistency coefficients were 0.866 and 0.861, respectively. Because both score distributions were non-normal, the association was examined using Spearman's rank correlation. **Results:** Family support was positively associated with the herbal-use practice score (Spearman's $\rho = 0.794$, $p < 0.001$). Because both constructs were measured by self-report in the same session and may contain related content, the magnitude of the coefficient requires cautious interpretation. **Conclusion:** Among students with previous herbal-use experience at one school in Ambon, higher family-support scores were associated with higher herbal-use practice scores. The cross-sectional, selected-sample design does not establish directionality or causality and does not show that reported use was safe or evidence-based.

Keywords: adolescents; family support; herbal medicine; self-care; cross-sectional study; Maluku

1. Introduction

Herbal products remain part of self-care and traditional health practices in Indonesia. Adolescents encounter information about medicines and herbal products through families, peers, schools, communities, pharmacies, and digital media. Recent studies in Indonesia and other settings show that adolescent self-medication is common and that knowledge gaps regarding appropriate use, adverse reactions, and medication safety can persist (Liu et al., 2024; Ma & Zhang, 2025; Sekhri et al., 2013). These observations make it important to distinguish the presence of herbal use from safe, appropriate, and evidence-based herbal use.

Family members can provide information, model health practices, prepare or purchase herbal products, and normalize their use. However, family involvement should not be assumed to be uniformly beneficial. It may transmit useful cultural knowledge, but it may also reinforce unverified indications, uncertain doses, product-quality problems, delayed professional care, or unrecognized interactions. International evidence also suggests that medicinal-plant knowledge among young people reflects complex social and environmental processes rather than a simple function of family structure (Mata et al., 2024).

Evidence from Indonesian senior high school students has described knowledge and experience of traditional medicine use (Wardani & Wahyudi, 2023), while research in Surabaya has documented adolescent self-medication practices (Mufarrihah et al., 2023). Nevertheless, context-specific evidence on how perceived family support relates to herbal-use practices among adolescents in Maluku remains limited. Maluku's cultural and ecological context makes this relationship locally relevant, but a single-school study cannot claim broad novelty or national representativeness.

The present study therefore examined the association between perceived family support for herbal use and a composite herbal-use practice score among students with previous herbal-use experience at SMA Negeri 12

Ambon. The study did not assess the clinical effectiveness of herbal products, verify product safety, or determine literal daily frequency or dose. Its contribution is contextual evidence from adolescents in Ambon, interpreted within the limits of a cross-sectional design and purposive sampling.

2. Materials and Methods

2.1 Study design and setting

A quantitative, non-experimental correlational study with a cross-sectional design was conducted at SMA Negeri 12 Ambon, Maluku, Indonesia, in November 2025. Exposure and outcome scores were collected once, without intervention or follow-up.

2.2 Population, eligibility, and sampling

The school enrolled 785 students in grades X–XII (grade X, 286; grade XI, 223; grade XII, 276). The source calculation used Slovin's finite-population formula, $n = N/[1 + N(e^2)]$, with $N = 785$ and $e = 0.10$: $n = 785/[1 + 785(0.10^2)] = 88.70$, rounded to 89 participants. The 10% margin of error represents a pragmatic, relatively low-precision choice; it was not a formal power calculation based on an expected correlation. Consequently, the sample-size rationale should not be interpreted as demonstrating adequate statistical power for all analyses.

Participants were selected purposively. Eligibility required active enrollment in grades X–XII, willingness to participate, and previous use of herbal products for health maintenance. Students who were absent during data collection or did not complete the questionnaire were excluded. Because previous herbal use was an inclusion criterion, the sampling frame was an experience-selected subgroup rather than all 785 students. The proportion and number of enrolled students meeting that criterion were not reported. Findings therefore apply only to the participating prior users at this school and should not be generalized to all students in Ambon or Maluku.

2.3 Variables and measurement instruments

Family support for herbal use was operationalized as perceived emotional, informational, instrumental, and appraisal-related family involvement in herbal use. It was measured with a locally used eight-item questionnaire. Herbal-use practice was measured with a separate eight-item questionnaire addressing agreement with practices related to using herbal products for health maintenance or prevention. The available instrument description does not demonstrate that the second questionnaire measured the number of uses per day, duration, dose, or intensity. Accordingly, this manuscript uses the term "herbal-use practice score" rather than "daily herbal utilization."

Each questionnaire used four response options: strongly agree, agree, disagree, and strongly disagree. Positively worded items were scored 4, 3, 2, and 1, respectively; negatively worded items were reverse-scored. After reverse coding, item scores were summed. Each scale therefore had a theoretical range of 8–32, with higher scores indicating greater perceived family support or a higher level of reported herbal-use practices. The original categorization used >20 and ≤ 20 . A score of 20 is the theoretical midpoint of the scale, calculated as $(8 + 32)/2$. Thus, >20 indicates a score above the midpoint, not a clinically validated threshold. The primary correlation analysis appropriately treated both scores as continuous/ordinal composite measures.

Item validity was evaluated in a 30-participant pilot using Pearson item–total correlations. The source report used $r = 0.361$ as the reference value at $\alpha = 0.05$ and stated that all 16 items exceeded this threshold. Cronbach's alpha was 0.866 for the family-support scale and 0.861 for the herbal-use practice scale, indicating good internal consistency in the pilot sample. These procedures assess item association and internal consistency but do not by themselves establish content validity, criterion validity, or discriminant validity between the two constructs.

2.4 Data collection and bias considerations

After institutional and school permission, eligible students received an explanation of the study purpose, procedures, confidentiality, voluntary participation, and the right to decline. Questionnaires were completed in the same data-collection session, checked for completeness, coded, and entered into statistical software. Because both variables used similarly formatted self-report items at the same time, common-method variance and social-desirability bias are plausible. Semantic overlap between family encouragement/facilitation items and herbal-use behavior items may also inflate the observed correlation. No factor-analytic test of discriminant validity or statistical assessment of common-method bias was reported.

2.5 Statistical analysis

Descriptive analysis summarized both scale scores. The source output reported means and standard deviations. Because the score distributions were non-normal, median and interquartile range (IQR) are the preferred descriptive statistics and must be added from the original dataset or statistical output; they cannot be

reconstructed reliably from means and standard deviations. Normality was assessed using the Kolmogorov–Smirnov procedure, and the reported p-values were <0.001 and 0.002. Spearman’s rank correlation was therefore used to estimate the monotonic association between the two composite scores. Statistical significance was set at $p < 0.05$, and the analysis was two-sided. No multivariable analysis was performed.

2.7 Ethical considerations

Ethical approval was reported from the Research Ethics Committee of STIKES Pasapua Ambon, Indonesia (No. 033/KEPK-STIKESPA/EC/2025). Participation was voluntary, confidentiality protections were explained, and written consent was reported from respondents before data collection.

3. Results

Table 1. Descriptive statistics and normality tests for the study variables (n=89)

Variable	Mean	SD	Kolmogorov-Smirnov statistic	p-value	Distribution
Family support for herbal use	28.70	3.720	1.386	<0.001	Non-normal
Daily herbal utilization	25.73	3.813	1.325	0.002	Non-normal

Table 1 shows that the mean family support score was 28.70 ± 3.72 , while the mean daily herbal utilization score was 25.73 ± 3.81 . The Kolmogorov–Smirnov test indicated that both family support ($p < 0.001$) and daily herbal utilization ($p = 0.002$) were not normally distributed. Therefore, a non-parametric statistical test, Spearman’s rank correlation, was used to examine the association between the two variables.

Table 2. Correlation between family support for herbal use and daily herbal utilization (n=89)

Variables	Spearman’s rho	p-value	N
Family support vs. daily herbal utilization	0.794	<0.001	89

As shown in Table 2, family support for herbal use was strongly and positively correlated with daily herbal utilization (Spearman’s $r_s = 0.794$, $p < 0.001$). This indicates that students who reported higher levels of family support also tended to report greater utilization of herbal products for daily health purposes.

4. Discussion

Among students with previous herbal-use experience at one senior high school in Ambon, higher perceived family support was associated with a higher herbal-use practice score. This contextual finding is compatible with families acting as sources of information, examples, products, and encouragement(Nurhalizah et al., 2026). Research on adolescent self-medication similarly indicates that family health resources, health literacy, and other social factors are associated with adolescents’ medication-related decisions(Liu et al., 2024; Mufarrihah et al., 2023). Indonesian studies also show that adolescents engage in self-medication and encounter traditional medicines, reinforcing the relevance of school- and family-based medication education (Mufarrihah et al., 2023).

The relationship should not be interpreted as evidence that family support is always protective or that a higher herbal-use score represents better health behavior(Thomas et al., 2017). The instrument measured reported practice, not the appropriateness of indications, product authorization, dose, preparation quality, effectiveness, adverse events, or interactions. Recent adolescent evidence documents gaps in knowledge about adverse reactions and safe use, including for traditional medicines(Gürol & Polat, 2020; Khan et al., 2025; Thalib, 2024). WHO’s current strategy likewise emphasizes evidence, safety, quality, regulation, and appropriate integration rather than uncritical expansion of use (World Health Organization, 2025).

The strength of the correlation requires particular caution. Both constructs were measured with eight-item, four-point self-report questionnaires during the same session. Items describing family provision, encouragement, or facilitation may be semantically close to items describing the respondent’s use. This can create construct overlap and common-method variance, making $\rho = 0.794$ larger than the association between conceptually distinct latent

constructs. The pilot item–total correlations and Cronbach’s alpha values demonstrate internal consistency but not discriminant validity. Future studies should publish the item content, use expert content validation, examine factor structure and discriminant validity, separate measurement occasions or sources where feasible, and include objective or behavior-specific indicators such as product, indication, frequency, dose, and duration.

Directionality is also uncertain. Family behavior may encourage adolescent herbal use, but adolescents who already use herbal products may request family assistance, discuss products more often, or perceive support more strongly. Longitudinal designs are needed to establish temporal order (Alum, 2024; Widayati et al., 2025). Qualitative work could additionally clarify how family knowledge is transmitted and how adolescents negotiate traditional knowledge, marketing claims, and professional advice. Evidence among young people suggests that medicinal-plant knowledge is shaped by complex interactions and is not reducible to simple household characteristics (Akhmar et al., 2023; Mata et al., 2024; Weckmüller et al., 2019).

The unadjusted correlation may be confounded by age or grade, sex, socioeconomic position, parental herbal use, family health literacy, knowledge and attitudes, cultural beliefs, peer influence, social-media exposure, product accessibility, and current symptoms or health status. Because these factors were not measured or controlled in a multivariable model, the analysis cannot isolate an independent association attributable to family support. Future studies should prespecify plausible confounders, measure them with valid instruments, and use an adequately powered multivariable analysis.

4.1 Strengths and limitations

The study contributes context-specific evidence from adolescents in Maluku and reports internal-consistency estimates for both scales. Its limitations are substantial: a cross-sectional design; purposive selection restricted to previous herbal users; use of the full school enrollment rather than the unknown eligible prior-user population in the sample-size calculation; a 10% margin of error without a formal power analysis; a small, single-school sample; self-report and social-desirability bias; possible common-method variance and construct overlap; absence of median, IQR, confidence interval, factor-analytic evidence, and multivariable adjustment in the available output; and uncertainty about the consent/assent procedure for minors. These limitations restrict causal inference and generalizability.

4.2 Implications for nursing and school health

The results support involving families in culturally responsive school-health education, but they do not justify promoting greater herbal consumption. Education should distinguish traditional use from evidence-based and safe use; encourage checking product authorization and quality; address indication, dose, duration, adverse reactions, and possible interactions; and reinforce timely consultation with pharmacists or other qualified health professionals. Recommendations should remain educational and safety-oriented until stronger longitudinal or intervention evidence is available.

5. Conclusions

In this purposively selected sample of students with previous herbal-use experience, perceived family support was positively associated with the herbal-use practice score. The finding provides contextual evidence from one school in Ambon, not a causal estimate or a prevalence estimate for all adolescents. It also does not demonstrate that the reported herbal practices were safe, effective, or evidence-based. The result should therefore inform cautious, family-inclusive education and motivate better-powered longitudinal studies with distinct, fully validated measures and adjustment for confounding.

Conflict of Interest

The authors declare no conflicts of interest.

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