



Belief and Practices Regarding *Kerokan* for “*Masuk Angin*” Across Different Age Groups: A Cross-Sectional Study

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ABSTRACT

Kerokan is a traditional healing practice widely used by Indonesians to treat *masuk angin*; however, no study has compared beliefs and practices across age groups within a unified quantitative framework. This study analyzed generational differences using a cross-sectional design with 115 respondents divided into four groups: adolescents (13–17 years), young adults (18–35 years), middle-aged adults (36–55 years), and older adults (56+ years) in West Java, Indonesia. A validated questionnaire ($\alpha = 0.882$) measured beliefs through four subscales (Perception, Science Fact/Myth, Efficacy & Safety, and Cultural Belief) and ten practice variables, analyzed using Kruskal-Wallis, Mann-Whitney, Chi-Square, and Spearman's Rho tests. Overall belief was moderate (67.6%). Perception scored highest (78.0%) while Efficacy & Safety scored lowest (59.1%). Significant age-related differences were found across all belief subscales ($p < 0.05$), with adolescents unexpectedly holding stronger beliefs than young adults, attributed to parental socialization. From ten practice variables, only timing and performer differed significantly by age group. Family remained the sole knowledge source across all groups (97.6%). Cultural Belief was the strongest predictor of *kerokan* frequency ($r = -0.328$, $p < 0.001$), highlighting the need for age-appropriate and culturally responsive health communication.

Keyword: Age groups, beliefs, *kerokan*, *masuk angin*.

ABSTRAK

Kerokan merupakan praktik pengobatan tradisional yang digunakan masyarakat Indonesia untuk mengatasi *masuk angin*; namun belum ada penelitian yang membandingkan kepercayaan dan praktik *kerokan* lintas kelompok usia dalam kerangka kuantitatif terpadu. Penelitian ini menganalisis perbedaan generasional menggunakan desain *cross-sectional* dengan 115 responden yang dibagi ke dalam empat kelompok: remaja (13–17 tahun), dewasa muda (18–35 tahun), dewasa tengah baya (36–55 tahun), dan lansia (56+ tahun) di Jawa Barat, Indonesia. Kuesioner tervalidasi ($\alpha = 0,882$) mengukur kepercayaan melalui empat subskala (Persepsi, Sains, Efikasi & Keamanan, dan Kepercayaan Budaya) serta sepuluh variabel praktik, dianalisis menggunakan uji Kruskal-Wallis, Mann-Whitney, Chi-Square, dan Spearman's Rho. Kepercayaan keseluruhan berada pada tingkat sedang (67,6%). Subsкала Persepsi memperoleh skor tertinggi (78,0%) sementara Efikasi & Keamanan terendah (59,1%). Perbedaan signifikan antar kelompok usia ditemukan pada seluruh subskala ($p < 0,05$), dengan remaja secara tidak terduga memiliki kepercayaan lebih tinggi dibandingkan dewasa muda, dikaitkan dengan sosialisasi orang tua. Dari sepuluh variabel praktik, hanya waktu pelaksanaan dan pelaku yang berbeda signifikan. Keluarga tetap menjadi satu-satunya sumber pengetahuan di semua kelompok (97,6%). Kepercayaan Budaya merupakan prediktor terkuat frekuensi *kerokan* ($r = -0,328$, $p < 0,001$), menegaskan perlunya komunikasi kesehatan yang responsif budaya dan berbasis kelompok usia.

Keyword: Kelompok usia, kepercayaan, *kerokan*, *masuk angin*.



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1. Introduction

In Indonesia, a coin and a bottle of eucalyptus oil can be more trusted than a doctor's prescription, a reality that reflects the power of and faith in *kerokan*, a traditional scraping therapy used to treat *masuk angin*, a culturally recognized condition understood as an accumulation of wind within the body causing bloating, nausea, dizziness, muscle pain, and fatigue. Although *masuk angin* has no equivalent diagnosis in biomedical nomenclature, it is widely recognized by Indonesians, and *kerokan* is regarded not only as an alternative treatment but also as a pragmatic necessity due to its accessibility and minimal cost (Prayoga & Pradipto, 2014). As a deeply rooted health practice, *kerokan* has even shown adaptive value in maintaining public health independently during health crises such as the pandemic (Tjundawan et al., 2022).

Similar scraping therapies are documented throughout East and Southeast Asia, known as Gua Sha in China, Cao Gio in Vietnam, and Goh Kyol in Cambodia, all sharing the philosophy that illness arises from stagnation or pathogenic wind that can be expelled through skin stimulation (Chu et al., 2021). In Indonesia, *kerokan* remains part of family healthcare across ethnic communities, with knowledge passed down orally across generations (Febriyanti et al., 2024).

Scientific interest in *kerokan*'s mechanisms has grown. The rubbing process generates heat through friction, promoting vasodilation and circulation, while petechiae formation has been linked to anti-inflammatory responses involving nociceptor pathways and biological substrates such as histamine and serotonin (Dubinskaya et al., 2024; Nurhasanah et al., 2025; Xu et al., 2012). Safety studies report no significant liver enzyme changes among hepatitis B patients following *kerokan* (Hanum et al., 2019), and clinical trials suggest scraping therapy may reduce chronic lower back pain more effectively than hot compress therapy (Wang et al., 2025).

Despite this evidence, *kerokan* remains embedded in a sociocultural landscape that varies across generations. Older adults tend to view it as a cultural obligation, with educational attainment positively correlated with its use among the elderly (Ardianti & Julianto, 2022), a pattern echoed in other cultural contexts where traditional remedies remain embedded in family-based child healthcare despite modern medicine's availability (Al-Yateem et al., 2023). Younger generations, however, hold more varied views, often substituting *kerokan* with commercial herbal remedies and reframing *masuk angin* through biomedical or digital health perspectives (Perdana Putri & Harahap, 2023). Notably, even medical experts who reject the traditional causal explanation of *masuk angin* still recommend *kerokan* as treatment (Anggoro & Jee, 2021).

More broadly, Indonesians typically turn to traditional remedies before visiting formal health facilities (Suharmiati et al., 2023; Widayanti et al., 2020), and complementary medicine use is strongly associated with older age and cultural background (Abdullah et al., 2023; Pengpid & Peltzer, 2019; Pradipta et al., 2023).

Yet despite this body of evidence, no study has directly compared *kerokan* beliefs and practices across age groups within a single quantitative framework. Prior studies have examined *kerokan*, *masuk angin*, or traditional medicine in isolation, leaving it unclear how generational differences simultaneously shape both what people believe and how they practice. This study addresses that gap by: (1) describing overall beliefs and practices across the sample; (2) comparing beliefs across four age groups using Kruskal-Wallis and Mann-Whitney post-hoc tests; (3) examining age-related differences in practice variables using Chi-Square; and (4) testing the relationship between belief scores and *kerokan* frequency using Spearman's Rho. We hypothesize that older age groups will show stronger beliefs and higher practice frequencies, given their deeper cultural ties and longer exposure to *kerokan*.

2. Method

2.1. Research design

This study employed a quantitative cross-sectional research design to compare beliefs and practices regarding *kerokan* as a treatment for *masuk angin* among different age groups. The study was conducted in a community setting in West Java, Indonesia, predominantly inhabited by the Sundanese ethnic group (89.6%). Data were collected over a period of approximately two weeks, from late April to early May 2026.

A total of 115 respondents participated in this study, selected through purposive sampling from four predefined age groups: adolescents (13–17 years), young adults (18–35 years), middle-aged adults (36–55 years), and older adults (56+ years). Inclusion criteria required respondents to be Indonesian citizens, aged 13 years or older, and capable of understanding and completing the questionnaire independently or with minimal assistance. Respondents were excluded if they were non-Indonesian citizens or unable to comprehend the

questionnaire. It should be noted that the resulting sample was not evenly distributed across all age groups, with the older adults (56+) group being significantly underrepresented ($n = 5$), which should be considered when interpreting findings involving this group.

Data were collected via a self-administered Google Form distributed through community networks and social media. For adolescent respondents aged 13–17 years, distribution was conducted through schools with prior permission from the relevant teachers, and participant assent was obtained from each respondent before completing the questionnaire. As this study did not involve any invasive procedures or sensitive personal data beyond self-reported beliefs and practices, formal institutional ethical clearance was not obtained; however, participation was entirely voluntary, anonymity was maintained throughout, and all respondents were informed of the purpose of the study prior to participation. Confidentiality of responses was ensured through the anonymous nature of the Google Form.

Data were collected using a structured questionnaire developed and validated through expert judgment for this study. The questionnaire consisted of three sections. The first section gathered sociodemographic information covering age, gender, last education, occupation, and ethnic background. The second section comprised 17 Likert-scale items (1 = Strongly Disagree to 5 = Strongly Agree) measuring beliefs about *kerokan* and *masuk angin*, organized into four subscales: Perception (6 items), Science Fact/Myth (4 items), Efficacy & Safety (4 items), and Cultural Belief (3 items). The third section consisted of ten categorical practice variables covering *kerokan* history, frequency, timing, performer, tools, lubricant, body area, post-procedure rules, first-aid behavior, and knowledge source. An additional open-ended section with four questions captured qualitative narratives on respondents' conceptualization of *masuk angin*, perceived effectiveness of *kerokan*, changes in practice over time, and perceived generational trends.

2.2. Reliability and validity

The questionnaire was developed based on a review of relevant literature on *kerokan*, *masuk angin*, and traditional medicine beliefs, with items constructed to reflect four theoretical dimensions: perception of *masuk angin* as a health condition, scientific understanding of *kerokan*, perceived efficacy and safety, and cultural belief. Prior to data collection, content validity was established through expert judgment involving two academic experts in science education with expertise in health-related beliefs and scientific literacy. The experts reviewed all 17 belief items for clarity, relevance, and appropriateness, and provided written feedback. Based on their suggestions, several items were revised to improve clarity and reduce ambiguity before the final questionnaire was administered.

Reliability was assessed using Cronbach's Alpha through SPSS v 27. The total belief scale (17 items) yielded $\alpha = 0.882$, indicating good internal consistency. At the subscale level, Science Fact/Myth ($\alpha = 0.826$), Efficacy & Safety ($\alpha = 0.840$), and Cultural Belief ($\alpha = 0.841$) all demonstrated good reliability. The Perception subscale yielded a slightly lower but still acceptable value ($\alpha = 0.626$), which may reflect the broader conceptual scope of the items within this subscale.

2.3. Data analysis

Normality testing using the Kolmogorov-Smirnov test confirmed that all belief score variables were not normally distributed ($p < 0.05$ for all subscales), justifying the use of non-parametric statistical tests. Descriptive statistics, including frequency, mean, and standard deviation, were used to summarize sociodemographic characteristics and patterns of beliefs and practices. For comparisons of belief scores, the Kruskal-Wallis test was conducted to analyze differences among the four age groups, followed by Mann-Whitney U post-hoc comparisons with Bonferroni correction (adjusted $\alpha = 0.05/6 = 0.008$). Chi-square tests were conducted to evaluate the association between age group and each of the ten practice variables. For all comparisons involving the 56+ age group ($n = 5$), Exact Significance values were used due to the small sample size. Spearman's Rho was used to examine the correlation between belief subscale scores and *kerokan* frequency. It should be noted that the frequency variable (V2) was coded on a reverse ordinal scale (1 = frequently, 2 = occasionally, 3 = never/rarely), meaning that negative correlation values indicate a positive relationship, that is, higher belief scores correspond to more frequent *kerokan* practice. Open-ended responses were analyzed using thematic analysis, with themes identified inductively and organized by age group. All quantitative analyses were performed using SPSS.

3. Result and Discussion

3.1. Sociodemographic Characteristics

The sociodemographic characteristics of all 115 respondents are presented in Table 1.

Table 1. Frequency Distribution of Respondent Characteristics

Respondent Characteristics	Frequency (n)	Percentage (%)
Age (Years)		
13–17	44	38.3
18–35	30	26.1
36–55	36	31.3
56+	5	4.3
Total	115	100
Gender		
Male	40	34.8
Female	75	65.2
Total	115	100
Ethnic Background		
Sundanese	103	89.6
Javanese	8	7.0
Others (Minangkabau, Lampung, Madura, Betawi)	4	3.5
Total	115	100
Last Education		
Elementary School	11	9.6
Junior High School	37	32.2
Senior High School	12	10.4
Currently in University	11	9.6
University Graduate	44	38.3
Total	115	100
Occupation		
Student/University Student	57	49.6
Civil Servant/Government Employee	38	33.0
Others	7	6.1
Homemaker	5	4.3
Private Sector Employee	3	2.6
Entrepreneur/Business Owner	3	2.6
Field Worker	1	0.9
Unemployed/Retired	1	0.9
Total	115	100

Table 1 presents the frequency distribution of respondent characteristics. Of the 115 respondents, the largest age group was adolescents (13–17 years, $n = 44$, 38.3%), followed by middle-aged adults (36–55 years, $n = 36$, 31.3%). Female respondents comprised the majority (65.2%). The dominant ethnic background was Sundanese (89.6%), consistent with the West Java setting of this study. In terms of education, university graduates represented the largest group (38.3%), while students and university students made up the largest occupational category (49.6%), reflecting the predominance of younger participants in the sample. Notably, the 56+ age group was considerably underrepresented ($n = 5$, 4.3%), a limitation that should be kept in mind when interpreting findings related to this group.

3.2. Beliefs regarding kerokan and masuk angin

3.2.1. Item-level descriptive analysis

Individual belief items showed considerable variation across the 17 statements. The highest mean score was for "Masuk angin can be caused by rain or cold weather" (mean = 4.14, SD = 0.926), reflecting near-universal cultural consensus on environmental causation, consistent with Anggoro and Jee (2021), who documented that

lay populations attribute *masuk angin* to cold exposure regardless of education level. Conversely, the lowest mean was for "Kerokan is safe for people of all ages" (mean = 2.43, SD = 1.052), indicating skepticism toward its safety profile, consistent with documented concerns about skin trauma from excessive scraping pressure (Samberkar et al., 2020).

Within Science Fact/Myth, the item on whether skin redness signals wind expulsion yielded a near-neutral mean (mean = 3.08, SD = 1.148), reflecting uncertainty about *kerokan*'s physiological mechanism, notable given that redness is in fact a product of subcutaneous microcirculatory changes rather than literal wind expulsion (Xu et al., 2012). Within Efficacy & Safety, the item on *kerokan*'s equivalence with modern medicine yielded a below-neutral mean (mean = 2.88, SD = 0.975), suggesting most respondents do not consider it therapeutically equivalent to pharmacological treatment, consistent with the understanding that *kerokan* primarily offers symptomatic rather than curative relief (Dessty et al., 2019).

3.2.2. Composite score analysis

Figure 1 illustrates the composite belief scores across the four subscales.

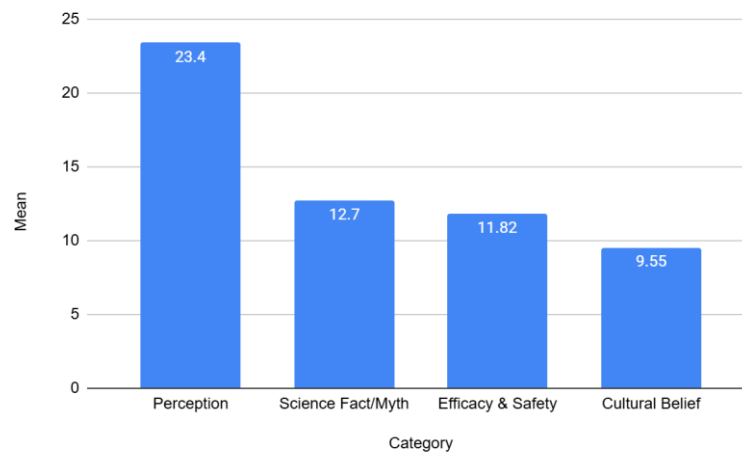


Figure 1. Mean score Belief by category

As shown in Figure 1, Perception yielded the highest composite score (mean = 23.40, 78.0% of its maximum of 30), indicating strong belief in the environmental and symptomatic reality of *masuk angin*. Efficacy & Safety recorded the lowest score (mean = 11.82, 59.1% of maximum), reflecting the greatest skepticism toward *kerokan*'s safety and equivalence to modern medicine. Science Fact/Myth (63.5%) and Cultural Belief (63.7%) fell within the moderate range, with an overall total belief score of 67.6% (mean = 57.47 of 85), indicating moderate belief in *kerokan* overall.

These findings reveal an interesting dissociation: while respondents strongly believe *masuk angin* is real (Perception = 78.0%), they remain ambivalent about *kerokan*'s efficacy and safety (59.1%), suggesting that the cultural legitimacy of the disease concept and the legitimacy of its treatment are processed through distinct cognitive frameworks. This is consistent with Anggoro and Jee (2021), who found that Indonesian medical professionals support *kerokan* as treatment while rejecting its traditional causal explanation. For public health communication, this implies that reinforcing belief in *masuk angin* alone will not automatically encourage or discourage *kerokan* use, as cultural attachment and perceived effectiveness remain more actionable factors.

3.3. Age-group differences in beliefs

This section presents the results of age-group comparisons across all belief subscales. First, the Kruskal-Wallis test was used to determine whether statistically significant differences existed among the four age groups, with results summarized in Table 3. Where significant differences were found, Mann-Whitney U post-hoc comparisons with Bonferroni correction were conducted to identify which specific age group pairs differed, as presented in Table 4.

Table 2. Kruskal-Wallis Test results of Belief Scores by age group

Belief Category	H	df	p-value	Significance
Perception	15.307	3	0.002	Significant
Science Fact/Myth	9.961	3	0.019	Significant

Belief Category	H	df	p-value	Significance
Efficacy & Safety	14.255	3	0.003	Significant
Cultural Belief	13.856	3	0.003	Significant
Total Belief	9.913	3	0.019	Significant

As shown in Table 3, statistically significant differences were found across all five belief measures: Perception ($H = 15.307$, $p = 0.002$), Science Fact/Myth ($H = 9.961$, $p = 0.019$), Efficacy & Safety ($H = 14.255$, $p = 0.003$), Cultural Belief ($H = 13.856$, $p = 0.003$), and Total Belief ($H = 9.913$, $p = 0.019$), indicating that age group is a significant differentiating factor across all belief dimensions.

Table 3. Mann-Whitney Post-Hoc results across age group pairs

Age Group Pair	Perception	Science	Efficacy	Cultural	Total
13-17 vs 18-35 yrs	ns ($p=0.352$)	* ($p=0.003$)	* ($p<0.001$)	* ($p<0.001$)	* ($p=0.005$)
13-17 vs 36-55 yrs	* ($p=0.001$)	ns ($p=0.086$)	ns ($p=0.248$)	ns ($p=0.021$)	ns ($p=0.561$)
13-17 vs 56+ yrs†	* ($p=0.001$)	ns ($p=0.375$)	ns ($p=0.911$)	ns ($p=0.574$)	ns ($p=0.449$)
18-35 vs 36-55 yrs	ns ($p=0.105$)	ns ($p=0.107$)	ns ($p=0.012$)	ns ($p=0.193$)	ns ($p=0.036$)
18-35 vs 56+ yrs†	ns ($p=0.033$)	ns ($p=0.421$)	ns ($p=0.069$)	ns ($p=0.170$)	ns ($p=0.043$)
36-55 vs 56+ yrs†	ns ($p=0.128$)	ns ($p=0.985$)	ns ($p=0.497$)	ns ($p=0.473$)	ns ($p=0.301$)

Note: * = significant after Bonferroni correction ($\alpha = 0.008$); ns = not significant; † Exact Significance used due to $n = 5$ in the 56+ group.

As shown in Table 4, the most notable finding from the post-hoc analysis concerns the comparison between adolescents (13–17 years) and young adults (18–35 years). Adolescents scored significantly higher on Science Fact/Myth, Efficacy & Safety, Cultural Belief, and Total Belief, with consistently higher mean ranks across all four categories (Science: 43.67 vs. 28.45; Efficacy: 44.92 vs. 26.62; Cultural: 44.80 vs. 26.80; Total: 43.33 vs. 28.95), contradicting the initial assumption that older groups necessarily hold stronger traditional beliefs. One possible interpretation is that adolescent beliefs are largely shaped through family socialization rather than independent judgment, given that 89.7% of adolescents reported that *kerokan* was performed by their parents. This is supported by Prayoga and Pradipto (2014), who reported that knowledge about *masuk angin* and *kerokan* is commonly transmitted through parental communication, consistent with broader evidence that caregiving beliefs are frequently transmitted across generations within families (Quak et al., 2025). However, causal conclusions cannot be drawn from this cross-sectional data alone.

In contrast, the 18–35 age group recorded the lowest scores in nearly all belief categories, suggesting a more skeptical stance toward *kerokan*. This may be linked to greater exposure to digital health information and more independent health-seeking behaviors, consistent with evidence that younger generations rely more heavily on digital sources than older cohorts (Jiao et al., 2023), and with Perdana Putri and Harahap (2023), who found that younger generations increasingly interpret *masuk angin* through biomedical rather than traditional frameworks.

On the Perception subscale, the 36–55 group significantly outscored the 13–17 group (mean rank = 49.74 vs. 32.94, $p = 0.001$), and the 56+ group showed similarly higher mean ranks (42.70 vs. 22.99, $p = 0.001$), suggesting that older adults hold more deeply embedded beliefs in *masuk angin* as an environmental threat, likely shaped through decades of lived experience (Ardianti & Julianto, 2022; Zhang et al., 2024). Findings involving the 56+ group ($n = 5$) must nonetheless be interpreted with considerable caution given the very small sample size and should not be generalized beyond this study. The absence of significant differences between the 36–55 and 56+ groups further suggests that beliefs about *kerokan* and *masuk angin* stabilize from middle adulthood onward, consistent with traditional medicine beliefs becoming more entrenched with age (Abdullah et al., 2023).

These findings only partially support the initial hypothesis: while older adults (36–55 and 56+) showed stronger Perception scores as expected, the broader hypothesis that older groups would hold uniformly stronger beliefs was not supported, given that adolescents outscored young adults across most subscales.

3.4. Practices of *kerokan* and age-related differences

3.4.1. Overall practice patterns

This section describes the overall pattern of *kerokan* practice among respondents. Table 5 summarizes the dominant responses across all ten practice variables among those who reported having practiced *kerokan* ($n = 82$). Of the 115 respondents, 71.3% ($n = 82$) reported having practiced *kerokan*, while 28.7% ($n = 33$) had

never done so. Among practitioners, the majority performed *kerokan* occasionally (87.8%), with only 8.9% reporting frequent use, and a small remainder (3.3%) reported having tried it but rarely or never repeating the practice afterward.

Table 4. Summary of Kerokan Practice Variables (N = 82 unless stated)

Variable	Dominant Response	n	%
V1 – Ever practiced kerokan (N=115)	Yes	82	71.3%
V2 – Frequency	Occasionally	72	87.8%
V3 – When performed	Upon symptom onset	29	36.7%
V4 – Performer	Parent	37	45.7%
V5 – Tool	Coin	58	70.7%
V6 – Lubricant	Eucalyptus oil	41	50.0%
V7 – Body area	Back	77	93.9%
V8 – Post-procedure rules	Sometimes followed	40	48.8%
V9 – First-line remedy	Rest/warm water	50	61.0%
V10 – Source of knowledge	Family	80	97.6%

As shown in Table 5, *kerokan* knowledge was sourced exclusively from family in 97.6% of cases, with no respondents citing digital media, schools, or healthcare workers as their source of knowledge. This confirms *kerokan* as a fundamentally intergenerational practice sustained through oral family transmission, consistent with Ouma (2022). Notably, even the 18–35 cohort with the highest digital engagement reported no digital acquisition of *kerokan* knowledge, suggesting that family socialization around this practice remains largely uncontested by modern information channels. It is also worth noting that only 12.2% of practitioners chose *kerokan* as their first response to *masuk angin*, while the majority (61.0%) opted for rest and warm water first, indicating that *kerokan* now occupies a complementary rather than primary role in health-seeking behavior, as observed by Widayanti et al. (2020).

3.4.2. Chi-Square analysis (Age-related differences in practices)

To examine whether practice patterns differed across age groups, Chi-Square analyses were conducted for each of the ten practice variables. It should be noted that several cells had expected counts below 5 due to the uneven distribution of respondents across age groups, particularly the underrepresentation of the 56+ group (n = 5). Therefore, all Chi-Square findings should be interpreted with caution. Table 6 presents the results of the Chi-Square analyses.

Table 5. Chi-Square results: Practice variables by age group

Variable	Chi-Square	df	p-value	Significance
V1 – Ever practiced kerokan	2.632	3	0.452	Not significant
V2 – Frequency of kerokan	2.577	3	0.462	Not significant
V3 – When kerokan is performed	22.024	9	0.009	Significant
V4 – Who performs kerokan	57.289	12	<0.001	Significant
V5 – Tool used	9.695	9	0.376	Not significant
V6 – Lubricant used	8.083	9	0.526	Not significant
V7 – Body area	3.739	3	0.291	Not significant
V8 – Post-procedure rules	2.372	6	0.882	Not significant
V9 – First-line remedy	14.763	12	0.255	Not significant
V10 – Source of kerokan knowledge	3.747	3	0.290	Not significant

Note: Several cells had expected counts less than 5 due to unequal group sizes; results should be interpreted with caution.

As shown in Table 6, only two variables showed significant associations with age group. For the timing of *kerokan* (V3, $\chi^2 = 22.024$, $p = 0.009$), adolescents (13–17 years) most commonly performed it immediately upon symptom onset (62.1%), driven by parental guidance, while young adults (18–35 years) largely waited until recommended by family (52.6%), reflecting greater ambivalence toward the practice. The 36–55 group showed a more autonomous, evenly distributed pattern.

For the performer of *kerokan* (V4, $\chi^2 = 57.289$, $p < 0.001$), the 13–17 group was almost exclusively treated by parents (89.7%), the 36–55 group predominantly by spouses (60.7%), and the 18–35 group split between both (parents 50.0%, spouses 25.0%). This lifecycle progression reflects natural developmental transitions in family caregiving roles, consistent with the broader pattern of family-based health practices in Indonesia (Abdullah

et al., 2023). The remaining eight variables showed no significant differences, confirming that *kerokan*'s physical mechanics, including tools, lubricants, body areas, and post-procedure rules, are the most culturally stable aspects across generations.

Regarding frequency specifically, the non-significant result for V2 ($\chi^2 = 2.577$, $p = 0.462$) indicates that *kerokan* frequency did not differ meaningfully across age groups, which does not support the initial hypothesis that older groups would practice more frequently than younger ones.

3.5. Relationship between Beliefs and Kerokan Frequency

To examine whether stronger beliefs corresponded with more frequent *kerokan* practice, Spearman's Rho correlations were computed between each belief subscale score and *kerokan* frequency. Before interpreting the results, it is important to note that the frequency variable (V2) was coded on a reverse ordinal scale, where 1 = frequently, 2 = occasionally, and 3 = never/rarely. Consequently, negative correlation values in this analysis indicate a positive relationship, meaning that higher belief scores correspond to more frequent *kerokan* practice. Table 7 presents the correlation results.

Table 6. Spearman's Rho correlations between Belief Scores and Kerokan Frequency

Belief Category	r	p-value	Significance
Perception	-0.171	0.068	Not significant
Science Fact/Myth	-0.262	0.005	Significant
Efficacy & Safety	-0.206	0.027	Significant
Cultural Belief	-0.328	<0.001	Significant (strongest)
Total Belief	-0.341	<0.001	Significant

As shown in Table 7, significant negative correlations were found for Science Fact/Myth ($r = -0.262$, $p = 0.005$), Efficacy & Safety ($r = -0.206$, $p = 0.027$), Cultural Belief ($r = -0.328$, $p < 0.001$), and Total Belief ($r = -0.341$, $p < 0.001$). Given the reverse coding described above, these negative values indicate that higher belief scores correspond to more frequent *kerokan* practice, confirming the hypothesized direction.

Cultural Belief showed the strongest correlation ($r = -0.328$), reinforcing that viewing *kerokan* as a meaningful family tradition is the most powerful driver of practice frequency, consistent with Abdullah et al. (2023). Science Fact/Myth and Efficacy & Safety also contributed, suggesting that scientific awareness and perceived therapeutic benefit help sustain the practice, supported by *kerokan*'s documented physiological effects including vasodilation and anti-inflammatory responses (Nurhasanah et al., 2025). The non-significance of Perception ($r = -0.171$, $p = 0.068$) is theoretically important: believing *masuk angin* is a real condition does not by itself motivate more frequent *kerokan* use, echoing Anggoro and Jee (2021), who found that illness recognition and treatment choice operate through separate cognitive pathways.

3.6. Qualitative insights from open-ended responses

To complement the quantitative findings, open-ended responses from four questions were analyzed using thematic analysis. Responses were coded inductively by a single researcher, with themes identified based on recurring patterns across responses and subsequently organized by age group. While the use of a single coder is acknowledged as a limitation of this analysis, the themes were cross-checked against the quantitative findings to ensure internal consistency. The emergent themes across age groups are summarized in Table 8.

Table 7. Thematic Summary of open-ended Responses by age group

Theme	13–17 years	18–35 years	36–55 years	56+ years
Definition of <i>masuk angin</i>	Symptom cluster; wind entering body literally	Symptom cluster; medically framed (dyspepsia, immune issue)	Symptom cluster; wind entering body	Wind entering body; traditional framing
Causal attribution	Environmental (cold, rain)	Lifestyle factors; biomedical framing	Environmental and lifestyle factors	Environmental (outdoors without protection)
Effectiveness of <i>kerokan</i>	Effective based on personal experience	Symptomatic relief only; some skeptical	Effective; varies by individual	Effective; generationally proven
Change in practice	No change; parents still perform it	Shifted to modern or herbal alternatives	Understands <i>kerokan</i> as supportive therapy	No change; still effective

Theme	13–17 years	18–35 years	36–55 years	56+ years
Why younger generations practice less	Modern medicine preference; aesthetic concerns	Digital health access; impractical; aesthetic concerns	Modern lifestyle; modern medicine accessible	Generational modernity; traditional values fading

As shown in Table 8, respondents across all age groups generally described *masuk angin* as a collection of physical symptoms, although interpretations differed. Adolescents (13–17 years) and older adults (56+ years) were more likely to retain traditional explanations involving wind entering the body, whereas the 18–35 group tended to describe *masuk angin* in more biomedical terms, consistent with Prayoga and Pradipto (2014), who reported that understandings of *masuk angin* are shaped by both cultural beliefs and everyday illness experiences.

The 18–35 group also expressed greater skepticism toward *kerokan*'s effectiveness beyond symptomatic relief, aligning with their lower quantitative belief scores and supporting Perdana Putri and Harahap (2023), who found that younger generations increasingly interpret *masuk angin* through biomedical rather than traditional explanations.

A common theme across age groups was the perception that younger generations practice *kerokan* less frequently, attributed to greater reliance on modern medicine, digital health access, practical considerations, and concerns about visible skin marks. These findings align with Ouma (2022), who suggested that the decline of traditional practices in modernizing societies may reflect changing generational identities and lifestyles. Taken together, these patterns suggest that effective health communication regarding *kerokan* may benefit from culturally sensitive approaches, shown to improve health behavior outcomes in the Indonesian context (Cipta et al., 2024).

4. Conclusion

This study examined beliefs and practices regarding *kerokan* for *masuk angin* across four age groups in West Java, Indonesia. Overall, belief in *kerokan* was moderate (67.6%), with Perception scoring highest (78.0%) and Efficacy & Safety scoring lowest (59.1%), suggesting that while *masuk angin* is widely accepted as a real health condition, skepticism remains regarding *kerokan*'s safety and equivalence to modern medicine. Significant age-related differences were found across all belief subscales ($p < 0.05$). Contrary to the initial hypothesis, adolescents (13–17 years) held stronger beliefs than young adults (18–35 years) across most subscales, while the 18–35 group demonstrated the most skeptical attitudes. Older adults showed stronger Perception scores than adolescents, suggesting that beliefs in *masuk angin* as an environmental threat become more deeply embedded with age.

In terms of practice, only timing and performer differed significantly by age group, while the physical mechanics of *kerokan* remained largely consistent across generations. Family was the sole reported source of *kerokan* knowledge across all groups (97.6%), confirming the practice's fundamentally intergenerational nature. Among all belief dimensions, Cultural Belief emerged as the strongest correlate of *kerokan* frequency ($r = -0.328$, $p < 0.001$), indicating that cultural identity and intergenerational influence play a more central role in driving practice frequency than perceptions of *masuk angin* alone.

These findings highlight the importance of age-appropriate, culturally responsive health communication that respects *kerokan*'s cultural significance while promoting its safe use. Family-based communication may be particularly effective for adolescents, whereas digital health literacy initiatives may better suit young adults. However, these findings should be interpreted with caution given several limitations: the sample was predominantly Sundanese, older adults (56+) were considerably underrepresented ($n = 5$), thematic analysis was conducted by a single researcher, and the cross-sectional design limits causal interpretation. Future research should involve larger, more ethnically diverse samples—particularly among older adults—and employ longitudinal or mixed-methods approaches for a more comprehensive understanding of *kerokan* beliefs and practices across generations.

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6. Conflict of Interest

The authors declare no conflict of interest.

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