



# Analysis of the Use of Herbal Medicine in the Management of Degenerative Diseases in Medan City

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<b>Track Record Article</b>  Revised: 23 May 2025 Accepted: 21 June 2025 Published: 23 June 2025  <b>How to cite :</b> Nasution, S. L. R., Afrillia, N. N., & Girsang, E. (2025). Analysis of the Use of Herbal Medicine in the Management of Degenerative Diseases in Medan City. <i>Contagion: Scientific Periodical Journal of Public Health and Coastal</i> , 7(1), 194–206.	<b>Abstract</b>  <i>Degenerative diseases such as coronary heart disease, diabetes, cancer, and chronic respiratory disorders represent major public health challenges in Indonesia, including in Medan City, with their prevalence continuing to rise due to modern lifestyles characterized by high intake of sugar and fat and low dietary fiber consumption. In response, herbal medicine has emerged as a popular and culturally aligned alternative treatment, particularly due to its affordability. This study aims to analyze the factors influencing the perceived effectiveness of herbal medicine in managing degenerative diseases in Medan City. A quantitative, cross-sectional design was employed, involving 369 respondents selected through stratified proportional and purposive sampling across 21 sub-districts in Medan. Data were collected using a structured, content-validated, and reliability-tested questionnaire, and analyzed using chi-square and logistic regression techniques. The majority of respondents were female (79.9%) with a secondary education level (89.7%), and most perceived the availability of herbal medicine services as adequate (93.2%). Additionally, 90% of participants considered herbal medicine effective for managing degenerative conditions. Multivariate analysis revealed that educational attainment was the most significant predictor of perceived effectiveness (<math>p = 0.012</math>), with those possessing higher levels of education more likely to report positive outcomes. In contrast, gender and perceived service availability did not show significant associations. These findings highlight the need to enhance health literacy through educational interventions to optimize the safe and effective use of herbal medicine. Integrating herbal medicine into the formal healthcare system and promoting collaboration between traditional and biomedical practitioners are recommended strategies for improving degenerative disease management in urban populations such as Medan.</i>  <b>Keywords:</b> <i>Herbal medicine; Degenerative diseases; Gender; Education level; Service availability</i>
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## INTRODUCTION

Degenerative diseases, including coronary heart disease, diabetes, cancer, and chronic respiratory diseases, represent significant public health concerns in Indonesia. According to the 2022 World Health Organization (WHO) report, non-communicable diseases (NCDs) account for 74% of global deaths, with cardiovascular diseases being the leading cause, followed by cancer, chronic respiratory diseases, and diabetes (Piovani et al., 2022). Modern lifestyles, characterized by high consumption of sugar and fat and low intake of fiber and micronutrients, exacerbate the prevalence of degenerative diseases (Fandinata & Ernawati, 2020).

In Indonesia, the prevalence of degenerative diseases continues to rise. Data from the 2018 Riskesdas survey indicate an increase in the prevalence of hypertension from 25.8% in 2013 to 34.1% in 2018, and diabetes from 6.9% to 8.5% over the same period. Risk factors

such as unhealthy diets, low physical activity, obesity, and smoking further contribute to this growing public health challenge (Astutik et al., 2020). In Medan City, hypertension was the second most common disease, accounting for 89,333 cases (18.03% of total cases) in 2018 (Pulungan et al., 2022).

The rise in the prevalence of degenerative diseases not only diminishes quality of life but also places a significant economic burden, both in direct costs (such as treatment and consultations) and indirect costs (including transportation and loss of productivity). In this context, herbal medicine offers an affordable and easily accessible alternative. Various traditional herbal remedies, such as ginger, turmeric, and curcuma, contain active compounds with potential pharmacological effects that may aid in managing degenerative diseases (Sahardi & Makpol, 2019).

The Indonesian government is advocating for the integration of herbal medicine into the national health system through Government Regulation No. 103/2014 on Traditional Health Services, Ministry of Health Regulation No. 15/2018, and Law No. 17/2023 on Health. These policies aim to optimize the use of herbal medicine, enhance access to affordable healthcare services, and promote the sustainable utilization of natural resources (Widyorini, 2017).

Despite policy support, the effectiveness and efficiency of herbal medicine utilization remain subjects of debate. Many studies focus primarily on specific pharmacological effects and neglect to explore the broader implications. For example, Keumala Sabty & Sawitri (2023) found a correlation between the use of medicinal plants and degenerative diseases, without examining the comprehensive benefits of herbal medicine, including its broader therapeutic effects. Tutik et al. (2023) highlighted the educational benefits of moringa leaves without addressing their practical clinical applications.

Furthermore, most studies have not considered local contexts, such as that of Medan, where data on the use of herbal medicine for degenerative diseases remains limited. This gap highlights the need for comprehensive research on the effectiveness and impact of herbal medicine in treating degenerative diseases, particularly in Medan. The findings of this study are expected to inform local health policies and guide the community in selecting affordable and effective treatment options.

Theoretically, this study is based on Andersen's Model of Health Service Utilization, which posits that the use of health services is influenced by predisposing factors (such as age, gender, education, social status, and health beliefs), enabling factors (including family support, economic status/insurance, and service availability), and need (measured and perceived health conditions). In this context, gender and education level serve as predisposing factors, the

availability of herbal medicine services as an enabling factor, and the presence of degenerative diseases as a need. Andersen's Model was chosen to analyze how these three categories of factors influence the effectiveness of herbal medicine use in managing degenerative diseases in Medan City (Alkhawaldeh et al., 2023).

## METHODS

This study employs a quantitative approach with a cross-sectional design to measure both independent and dependent variables at a specific point in time. The research was conducted in Medan City, an area characterized by a high prevalence of degenerative diseases and a strong tradition of herbal medicine use, from January to March 2025. The study population comprises all residents of Medan who utilize traditional healthcare services. A sample size of 369 respondents was calculated using the Lemeshow formula. Inclusion criteria consisted of residents of Medan who use herbal medicine and were willing to participate, while exclusion criteria included non-residents and individuals with communication barriers. The sampling techniques employed a combination of Stratified Proportional Sampling and Purposive Sampling. Stratification was based on administrative regions to ensure proportional representation across the 21 sub-districts of Medan, while purposive sampling targeted respondents who met specific characteristics aligned with the study objectives, namely individuals actively using herbal medicine to manage degenerative diseases.

The research instrument consisted of a structured questionnaire, which underwent rigorous validation prior to its use. Content validity was established through expert review to ensure the relevance and representativeness of each item. Construct validity was assessed using item-total correlation analysis with SPSS, where all 19 items yielded calculated  $r$  values greater than the table  $r$  value of 0.361, confirming the validity of each item (see Table 1). Reliability testing was conducted using Cronbach's alpha, which produced a value of 0.977 (see Table 2), indicating excellent internal consistency. Validity testing was carried out before the questionnaire distribution, with only those items meeting validity criteria included in the final instrument. For variables other than personal hygiene, questionnaire items were adapted from previously validated instruments, as referenced in earlier studies.

**Tabel 1. Validity Test**

<b>Validity Test</b>			
<b>No.</b>	<b>Calculated-R</b>	<b>Table-R</b>	<b>Status</b>
1.	0,865	0,361	Valid
2.	0,865	0,361	Valid
3.	0,859	0,361	Valid
4.	0,813	0,361	Valid
5.	0,874	0,361	Valid
6.	0,857	0,361	Valid
7.	0,905	0,361	Valid
8.	0,905	0,361	Valid
9.	0,905	0,361	Valid
10.	0,883	0,361	Valid
11.	0,899	0,361	Valid
12.	0,830	0,361	Valid
13.	0,807	0,361	Valid
14.	0,830	0,361	Valid
15.	0,772	0,361	Valid
16.	0,746	0,361	Valid
17.	0,755	0,361	Valid
18.	0,814	0,361	Valid
19.	0,824	0,361	Valid

**Tabel 2. Reliability Values**

<b>No.</b>	<b>Variable</b>	<b>Cronbach's Alpha Value</b>	<b>Description</b>
1.	19 Questions	0,977	Reliability

Data were collected through structured interviews using a validated questionnaire. The independent variables in this study included gender, highest level of education, and perception of the availability of traditional health services, while the dependent variable was the perception of the effectiveness of herbal medicine in managing degenerative diseases. Data analysis was conducted using SPSS software. Univariate analysis was performed to describe the characteristics of the respondents and the distribution of the variables. Bivariate analysis, using the Chi-square test, assessed the relationships between each independent and dependent variable. Multivariate analysis, employing logistic regression, identified the dominant factors influencing the effectiveness of herbal medicine use. Statistical significance was set at 0.05 (two-tailed). This study received ethical approval from the Ethics Committee of the Faculty of Public Health, Prima Indonesia University (006/KEPK/UNPRI/V/2025).

## RESULTS

### Univariate Analysis

The frequency distribution of respondent characteristics and variables related to the management of degenerative diseases in Medan City is presented below:

**Tabel 3. Frequency Distribution of the Treatment Variable in the Management of Degenerative Diseases in Medan City**

Variable	Frequency	%
<b>Gender</b>		
Male	74	20.1
Female	295	79.9
<b>Total</b>	<b>369</b>	<b>100</b>
<b>Education Level</b>		
Secondary Education $\leq$ High School	331	89.7
Higher Education $\geq$ DIII	38	10.3
<b>Total</b>	<b>369</b>	<b>100</b>
<b>Service Availability</b>		
Inadequate	25	6.8
Adequate	344	93.2
<b>Total</b>	<b>369</b>	<b>100</b>
<b>Effectiveness of Treatment</b>		
Ineffective	37	10.0
Effective	332	90.0
<b>Total</b>	<b>369</b>	<b>100</b>

A total of 369 respondents participated in this study. The majority of respondents were female, comprising 295 individuals (79.9%), while male respondents accounted for 74 individuals (20.1%). Regarding educational attainment, most respondents had secondary education (up to senior high school), totaling 331 individuals (89.7%), whereas those with higher education (at least Diploma III) numbered 38 individuals (10.3%).

In terms of the availability of traditional health services, most respondents perceived that herbal medicine services in their area were adequately available, with 344 individuals (93.2%) reporting sufficient availability, while 25 individuals (6.8%) considered the availability insufficient. Regarding treatment effectiveness, the majority of respondents believed that herbal treatments were effective in managing their condition, with 332 individuals (90.0%) endorsing the effectiveness, while 37 individuals (10.0%) felt the treatment was ineffective. Overall, these descriptive findings suggest that respondents generally hold a positive perception of both the availability of herbal services and the effectiveness of the herbal treatments they utilized.

### Multivariate Analysis

The following presents the multivariate results related to the management of degenerative diseases in Medan City:

**Tabel 4. Multivariate Analysis Results for the Management of Degenerative Diseases in Medan City**

Variabel	B	Sig.	Exp(B)	95% CI
Education	-2.595	0.012	0.075	0.010-0.567
Gender	-1.055	0.291	0.348	0.049-2.468
Service Availbability	-1.837	0.286	0.159	0.005-4.660

Table 2 presents the results of logistic regression modeling the effectiveness of herbal treatment (effective vs. ineffective) based on the three independent variables. The logistic regression results indicate that the respondent's education level significantly influenced the effectiveness of herbal medicine use ( $p = 0.012$ ). The odds ratio (Exp(B)) of 0.075, with a 95% confidence interval (0.010–0.567), suggests that respondents with lower education levels were only 0.075 times (7.5%) as likely to perceive herbal treatment as effective compared to those with higher education. In other words, individuals with lower education were more likely to report less effective herbal treatment outcomes compared to those with higher education.

In contrast, gender did not significantly affect herbal treatment effectiveness ( $p = 0.291$ ). The Exp(B) for the gender variable was 0.348 (95% CI: 0.049–2.468), indicating no statistically significant difference in the likelihood of effective treatment between female and male respondents. Although the odds ratio below 1 (0.348) suggests a tendency for females to be slightly less likely to experience effective treatment than males, this relationship was not statistically significant.

Similarly, the perceived availability of herbal services did not significantly influence the effectiveness of herbal treatment in the multivariate analysis ( $p = 0.286$ ). The Exp(B) value of 0.159 (95% CI: 0.005–4.660) suggests a tendency for respondents who perceived herbal services as insufficient in their area to be only 0.159 times more likely to experience effective treatment compared to those who perceived the services as sufficient. However, this difference was not statistically significant.

Overall, these findings highlight that education level is the only factor with a statistically significant impact on the effectiveness of herbal medicine use in managing degenerative diseases in Medan City. Meanwhile, gender and service availability did not

demonstrate statistically significant effects on the perceived effectiveness of the herbal treatments used by the respondents.

## **DISCUSSION**

### **The Influence of Education on Herbal Medicine Use in Managing Degenerative Diseases in Medan City**

Education plays a crucial role in health decision-making, especially in the context of using herbal medicine to manage degenerative diseases (Febriyanti et al., 2024). A higher level of education enhances health literacy, enabling individuals to better understand the mechanisms of herbal remedies, appropriate dosages, potential side effects, and how herbal treatments can be integrated with conventional medical therapies (Firenzuoli & Gori, 2007). Studies have shown that individuals with higher education are better able to distinguish between scientifically supported health practices and potentially harmful ones (Zaidi et al., 2022). In Medan City, our findings suggest that respondents with higher education levels had more favorable perceptions of the effectiveness of herbal treatments. Education enhances an individual's ability to seek and process information about the benefits and risks associated with herbal medicine, ultimately contributing to better health outcomes.

Furthermore, this study reveals that lower education levels are associated with a higher likelihood of ineffective use of herbal treatments. Individuals with less education may lack the skills to critically assess health information, leading to misconceptions about the effectiveness and safety of herbal remedies (Febriyanti et al., 2024). As observed in other regions of Indonesia, individuals with lower education levels are often more likely to rely on herbal medicine as their primary treatment method without seeking professional medical advice. Research indicates that herbal medicine is frequently the primary healthcare option, especially in rural and underserved communities where access to conventional medical services is limited (Febriyanti et al., 2024) (Harfiani et al., 2025). This study exclusively involved herbal medicine users, which may limit its generalizability. Future research comparing users and non-users could provide valuable insights into whether perceptions differ significantly between these populations (Firenzuoli & Gori, 2007). To address this gap, health education programs should be tailored to different education levels, ensuring that both individuals with basic and higher education receive the information needed to make informed decisions about herbal medicine use.

### **The Influence of Gender on Herbal Medicine Use in Managing Degenerative Diseases in Medan City**

International studies suggest that gender may influence the use of herbal medicine, with women generally being more likely to adopt herbal remedies due to their roles as primary caregivers and their perceived responsibility for family health (Zaidi et al., 2022) (Choi et al., 2024). However, the findings of this study contradict this international trend. Gender did not significantly influence the effectiveness of herbal medicine in Medan City, which presents an interesting result (Zaidi et al., 2022). This may be attributed to the evolving roles of both women and men in urban Indonesian settings, where both genders are increasingly aware of health issues and have access to health information (Harfiani et al., 2025).

Furthermore, the study suggests that other demographic factors, such as occupation, socioeconomic status, and health literacy, may interact with gender to influence the use of herbal medicine (Zaidi et al., 2022). For instance, women in lower socioeconomic strata may use herbal medicine more frequently due to its lower cost, whereas men, particularly in higher social strata, may be more likely to rely on conventional medical treatments (Choi et al., 2024). Research indicates that 42.29% of participants use herbal medicines, with notable gender differences in usage patterns (Zaidi et al., 2022). It would be valuable to explore how gender intersects with other factors, such as occupation and income, to better understand how these dynamics influence the use of herbal medicine (Stjernberg et al., 2006).

### **The Influence of Service Availability on Herbal Medicine Use in Managing Degenerative Diseases in Medan City**

Although the availability of herbal medicine services in Medan City is generally perceived as adequate, the effectiveness of these services is more complex. Our study found that, despite a high perception of service availability, other factors such as cultural beliefs, personal knowledge, and the quality of information provided to patients play a significant role in determining the effectiveness of these services (Febriyanti et al., 2024). This finding aligns with research in other urban settings, where access to services alone is insufficient to guarantee the successful implementation of alternative medical practices (Stjernberg et al., 2006).

The gap between the availability of herbal medicine services and their effective use can be attributed to several factors, including significant structural barriers that hinder access to formal healthcare services (Mwaka et al., 2015). High healthcare costs represent a significant structural barrier, as out-of-pocket expenditure in Indonesia accounts for 34.76% of total health expenditure, well above the WHO's recommended maximum of 20%. This economic burden compels many patients to



seek herbal medicine as a more affordable alternative to conventional treatments. Additionally, long travel distances to healthcare facilities, the unavailability of medicines, and lengthy procedures further discourage patients from accessing formal healthcare services, making herbal medicine a more accessible option (Mwaka et al., 2015).

First, there may be a lack of formal regulation or standardization in the quality of herbal products, leading to variability in the effectiveness of treatments. Second, a gap may exist between the knowledge of healthcare providers and that of the community regarding herbal remedies. Therefore, it is crucial for healthcare workers, local health centers, and NGOs to collaborate in developing a standardized educational program that promotes the safe and informed use of herbal remedies, ensuring that both healthcare providers and users are equipped to make safe and effective decisions.

### **Medical Pluralism and the Integration of Herbal Medicine**

Kleinman's concept of medical pluralism provides a valuable framework for understanding how herbal medicine interacts with the biomedical system in Medan. Medical pluralism acknowledges the coexistence of various medical systems—biomedical, traditional, and complementary—and examines how individuals incorporate these systems in their healthcare decisions (Febriyanti et al., 2024). In Medan, both herbal medicine and conventional biomedical treatments are used concurrently, with individuals often opting to combine both approaches for managing degenerative diseases (Harfiani et al., 2025).

This approach to healthcare is influenced by the broader socio-political and cultural context, where individuals are not passive recipients of medical knowledge, but active participants in selecting their preferred treatments based on their beliefs, experiences, and available information (Febriyanti et al., 2024). In Medan, the concurrent use of herbal medicine and biomedicine reflects the flexibility of the healthcare system, allowing patients to choose treatments that align with their cultural values and personal preferences (Abdullah et al., 2023). This dynamic system of care can be reinforced by government policies and healthcare providers collaborating to ensure that both medical approaches complement each other, rather than competing for dominance.

### **Cultural Hegemony and Biopower in Healthcare Practices**

Michel Foucault's theories of cultural hegemony and biopower provide a framework for understanding how state policies and regulatory frameworks shape the practice of traditional medicine, including herbal medicine, in Indonesia. The government's role in regulating and promoting herbal medicine use through laws such as Law No. 17 of 2023 reflects

the state's effort to manage and control health practices, influencing both the availability and perceived legitimacy of herbal treatments (Susanti et al., 2024). These policies are designed not only to standardize herbal medicine but also to legitimize its integration into the formal healthcare system (Susanti, 2024).

However, the implementation of such policies may present challenges (Susanti et al., 2024). While these policies aim to improve safety and accessibility, they may also marginalize unregulated forms of traditional medicine that have been used for centuries within local communities (Abdullah et al., 2023). The state's control over herbal medicine can be understood as a form of biopower, where the government exerts influence over how individuals manage their health, often prioritizing formal, standardized healthcare practices over local knowledge systems (Susanti, 2024).

### **Biological and Cultural Mechanisms in the Effectiveness of Herbal Medicine**

This new explanation addresses social and policy aspects, but it does not explore how the immune system, pain perception, or the placebo effect contribute biologically and culturally. The biological mechanisms underlying the effectiveness of herbal medicine involve complex interactions with the immune system, where certain herbs can stimulate immune pathways that may enhance, or potentially interfere with, existing health conditions (Chakka et al., 2022) (Lee & Werth, 2004). Studies have shown that immunostimulatory herbs such as Echinacea, Spirulina, and Aphanizomenon flos-aquae can activate immune cells and promote the production of cytokines, which may account for some of their therapeutic effects. However, these actions also raise concerns about potential adverse reactions in individuals with autoimmune conditions (Lee & Werth, 2004).

The placebo effect represents a significant biocultural component in the effectiveness of herbal medicine, where cultural beliefs and trust in traditional healing systems can elicit real physiological responses through mind-body connections (Firenzuoli & Gori, 2007). This phenomenon is particularly relevant in Indonesia, where herbal medicine (jamu) is deeply embedded in cultural traditions and is perceived as both culturally appropriate and accessible (Harfiani et al., 2025). The therapeutic relationship between traditional healers and patients, characterized by in-depth communication and cultural understanding, may enhance treatment outcomes beyond the pharmacological effects of the herbs themselves.

Pain perception and management through herbal remedies involve both biological and cultural dimensions. Traditional healing practices, such as cupping therapy, which is widely used in Indonesia alongside herbal treatments, illustrate how cultural practices can influence

pain perception and provide therapeutic benefits (Hong et al., 2006). The biocultural diversity of medicinal plant use reflects the integration of traditional knowledge systems with biological understanding, forming a complex therapeutic framework that operates through multiple mechanisms.

## CONCLUSIONS

This study provides valuable insights into the use of herbal medicine in managing degenerative diseases in Medan City. It highlights the significant role of education in determining the effectiveness of herbal medicine, with higher education levels correlating with better health literacy. This, in turn, enhances individuals' ability to use herbal remedies safely and effectively. In contrast, gender and service availability were not found to be significant factors in the perceived effectiveness of herbal medicine in this context.

The findings suggest that education should be central to public health interventions aimed at improving the use of herbal medicine, particularly in urban areas where access to both traditional and biomedical services is readily available. Tailored educational programs that address different education levels can empower individuals to make informed decisions about herbal medicine and minimize the risks associated with its misuse.

Additionally, the integration of herbal medicine into the formal healthcare system is essential. While Medan City provides good access to herbal medicine services, the effectiveness of these services could be enhanced by improving public health literacy, regulating the quality of herbal products, and fostering collaboration between traditional health practitioners and biomedical providers. This integrated approach could maximize the benefits of both systems, ensuring that herbal medicine complements rather than competes with conventional treatments.

The study also underscores the need for further research into how gender, culture, and socioeconomic status intersect to influence health decisions regarding herbal medicine use. Future studies should explore these factors more comprehensively and consider comparing herbal medicine users with non-users to gain a fuller understanding of its role in managing degenerative diseases.

Finally, as the government continues to regulate and promote herbal medicine, it is important that these efforts are inclusive of diverse cultural practices, respecting local knowledge while ensuring safety and efficacy. By doing so, herbal medicine can become a sustainable and integral part of Indonesia's healthcare system, improving the management of degenerative diseases across all populations.

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