Consumer Perception, Knowledge, and Practice of Traditional Herbal Medicines: A Case Study from Besut, Terengganu

***Nalini Arumugam[1], Siti Nur Atiqah Binti Rosdin[2], Anath Rau Krishnan[3]**

[1]Senior Lecturer Faculty Bioresources and Food Industry University Sultan Zainal Abidin Besut Campus, TERENGGANU, MALAYSIA

[2]Graduate Student Faculty Bioresources and Food Industry University Sultan Zainal Abidin Besut Campus, TERENGGANU, MALAYSIA

[3]Labuan Faculty of International Finance Universiti Malaysia Sabah

***Corresponding Author**

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ABSTRACT

Traditional herbal medicinal (THM) are commonly used by the local people as an alternative for health purposes. However, a lack of social research on this topic makes it difficult to accurately determine the extent of consumer knowledge about the benefits of THM. The transmission of knowledge about THM from one generation to another is poor, primarily relying on verbal communication. This limited transfer of knowledge hinders the dissemination of information and may contribute to a gap in understanding among consumers regarding the potential benefits of THM. This research is being conducted to determine the association between demographic profiles and THM practice. A survey was carried out over 150 THM consumers in Besut, Terengganu, using a self-administered questionnaire. The findings indicated that 69.3% of consumers are female, and most of the consumers are Muslims and Malay (91.3%), in line with the major population of Besut, Terengganu. The respondents consist of 67.3% from rural and urban areas (32.7%). Pearson Correlation Analysis indicates a high relationship between knowledge and practice; also, attitude and practice have a high relationship. People are shifting to natural medicine by using THM. Therefore, it is a good approach to provide information on THM in layman's language for better understanding. It fosters a sense of trust and confidence in the use of THM as a viable option for health management. Ultimately, providing information in layman's language can contribute to the widespread adoption and acceptance of traditional herbal medicinal, leading to improved overall health outcomes within the community.

Keywords: Traditional herbal medicinal, consumer perception, knowledge, attitude, practice

INTRODUCTION

Consumers in Besut, Terengganu, view traditional herbal remedies depending on a lot of elements including cultural beliefs, expertise, and views on health and wellbeing. Herbal treatments are becoming more and more popular since people are realizing their possible advantages, particularly in times of health emergencies like the COVID-19 epidemic. Studies have demonstrated, for example, that people typically view herbal remedies as safer substitutes for conventional medications because of their natural beginnings and belief that they have fewer negative effects (Kristianto et al., 2022; Abdillah et al., 2020). People who have traditionally relied on herbal treatments for health maintenance and treatment of diseases are especially prone to this opinion (Yuniati et al., 2021).

In Besut as in other areas, consumer perceptions of herbal treatment are much shaped by the cultural setting. Deeply ingrained in the society, traditional ideas and customs shape people's perspective on the safety and effectiveness of herbal remedies. Studies show that consumers see herbal treatments handed down through

generations as essential to their cultural identity and health practices, hence trusting them (Suharti et al., 2021). A strong social endorsement for the use of herbal therapies is created by anecdotal evidence from family and community members who relate favorable experiences with them, therefore strengthening this trust (Fansia et al., 2023).

Herbal medications also are widely used because of their accessibility and cost. Herbal products are more affordable and handier for many Besut consumers than conventional drugs, which could need prescriptions and can be more expensive (Ithnain et al., 2020). The local market for herbal treatments is sometimes defined by a range of products that meet various health demands, therefore facilitating consumer access to appropriate choices (Walkyanti et al., 2023). Herbal medication consumption has grown in response to this availability as well as successful marketing campaigns stressing their advantages (Suryadi et al., 2018). Views are greatly shaped by consumer awareness of herbal medications as well. Studies have revealed that those who are well-informed about the advantages and possible hazards connected with herbal treatments are more prone to use them (Izzati et al., 2021). In Besut, educational campaigns meant to raise knowledge of the appropriate use of herbal products should boost consumer confidence and support better practices by means of safer methods (Arumugam, N. 2019). Knowing the need of obtaining herbal remedies from reliable sources, for example, helps to reduce dangers related to adulteration or contamination (Fikayuniar et al., 2023). The COVID-19 epidemic's effects have affected consumer impressions of herbal remedies even more. Driven by the conviction that natural goods can improve health and prevent disease, many people turned to herbal treatments as a means of strengthening their immune systems throughout the epidemic (Alyami et al., 2020).

Though herbal remedies are viewed favourably, questions about their safety and effectiveness nevertheless exist. Some consumers show doubt over the absence of scientific data to back the assertions made by herbal medication manufacturers (Sundell & Jönsson, 2016). This emphasizes the need of more thorough investigation and open communication on the advantages and possible hazards connected to herbal products. By means of evidence-based knowledge and education, addressing these issues can assist to establish consumer confidence and promote responsible use of herbal treatments (Rahmawati et al., 2024). Moreover, consumer impressions in Besut depend much on the interaction of conventional and modern medicine. Many people combine herbal remedies with traditional remedies, usually seeing them as complementary rather than mutually exclusive (Ali et al., 2024). Reflecting a growing awareness of the value of both traditional and modern healthcare practices, this integrated approach enables consumers to make informed decisions based on their particular health needs and preferences.

People widely use alternative treatments that utilize traditional herbal medicine because they perceive them as safe, healthy, and devoid of adverse effects. This is in contrast to modern treatments that use chemicals. As people got more educated and made more money, they became more worried about their health. This was especially true for Malaysians. Older people often use traditional medicine, but younger people aren't as familiar with them because they don't get as much contact with them. By word of mouth or by setting an example, traditional herbal medicine advantages spread from one household to another. This made it hard for younger people to learn about them. Therefore, it is crucial to protect plant species that are uncommon or in high demand for use in traditional herbal medicine (Arumugam, N. 2019).

The field of social research on traditional herbal medicine exhibits gaps as a result of insufficient investigation into the level of knowledge about plant benefits, awareness of potential risks associated with common practices involving traditional herbal medicine, and the extent of consumer knowledge, attitudes, and practices regarding traditional herbal medicine. The analysis of knowledge, attitudes, and practices related to traditional herbal medicine should take priority in this research study in order to close these gaps. The research study focuses on analysing people's opinions of traditional herbal medicine and its accompanying practices in order to address the problem mentioned above.

KAP Model

We sought the response from the participants using the KAP Model in order to reach the objective of this study. Knowledge, attitude, and practice are three linked elements of the KAP model. Knowledge is what people know about a given health concern; attitudes are their opinions and feelings about that issue. Practices are the actions people do depending on their knowledge and perspective. Higher degrees of knowledge have repeatedly

demonstrated to be favorably connected with good attitudes and practices (Yang et al., 2020; Lee et al., 2021). For example, a COVID-19 research underlined how much population awareness improved preventive actions, so stressing the need of educational campaigns (Lee et al., 2021). Knowledge by itself, however, does not necessarily forecast conduct; other elements, like cultural views and socioeconomic level, might affect attitudes and behavior (Tillyard & DeGennaro, 2018; Kundu et al., 2022).

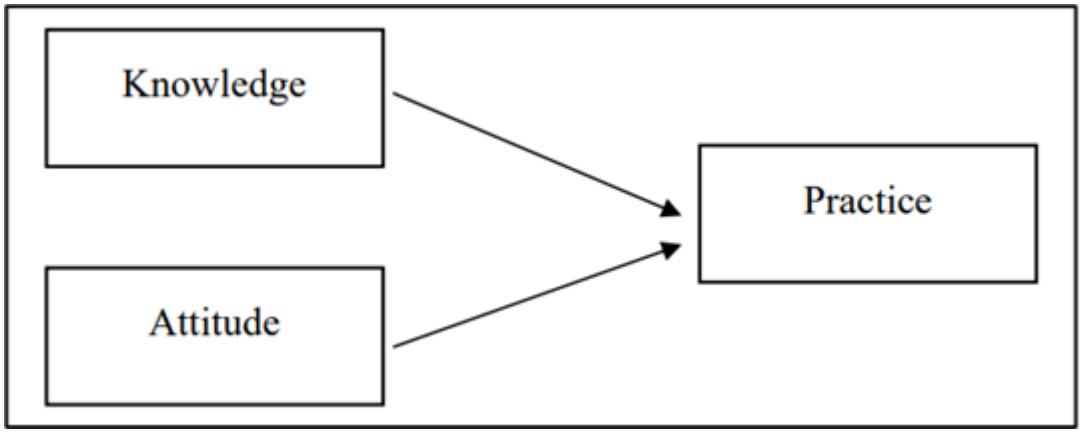

Figure 1: The Study Conceptual Framework

Finally, a complicated interaction of cultural beliefs, knowledge, accessibility, and modern health trends shapes consumers in Besut, Terengganu's view of traditional herbal remedies. Healthcare providers and legislators among other stakeholders should create an environment that encourages safe and informed use of herbal treatments as their demand keeps rising. Improving consumer knowledge and guaranteeing the quality of herbal remedies would help the community to negotiate the difficulties of contemporary healthcare while nevertheless benefiting from the rich legacy of traditional therapeutic techniques (Arumugam, N. 2019).

METHODS

The location of the study was Besut, Terengganu, which is situated on the East Coast of Malaysia. According to the data gathered, there were 182 villages and 154,168 people living in Besut (Besut District Council, 2021). Due to the size of the population and the uncertainty surrounding the number of populations using traditional medicinal, the respondents were chosen using a random sampling technique. G*Power was used to calculate the number of samplings needed for the purpose of the study. G*Power 3.1.9.7 for Windows 11 was downloaded. The detailed information to generate the study sampling was used, which included 'A Priori Type of Power Analysis' with F test for 'Test Family' and Linear Multiple Regression. A total of 150 respondents participated in the face to face interview session.

The main source of data was the questionnaires that were distributed to the respondents to obtain the information regarding the study. A self-administered form was used to ensure fairness and avoid bias. The respondents were given a short explanation of the study's goal, and their personal information was kept private. It took about 15 minutes for people to fill out the questionnaires. Participants were selected based on their ability to read and write in Malay and their willingness to participate in the study, as the questionnaires were written in Malay. However, if a person could not read or write, the researcher filled out the form based on what they said.

Questionnaire Design

A semi-structured questionnaire was created, comprising both open-ended and closed-ended questions. It consisted of four parts, which were demographic data, knowledge, attitude, and practice (KAP) towards traditional herbal medicinal. The tools used for this study were modified and researched, adapting them to fit current research requirements.

The Knowledge, Attitudes, and Practices (KAP) components will be evaluated in connection with the parametric test by using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree" (Awang et al., 2015). In a parametric test, researchers usually want to find out how much of an attitude a respondent has instead of asking them to rank their opinions. The 5-point Likert scale gives more accurate measurements, makes measurements more reliable, cuts down on multicollinearity problems, and ensures that the data is relatively balanced and not heavily biassed. The items used to measure each of the framework's "constructs" are taken from other writers' studies. Section A includes demographic profiles such as gender, age, religion, ethnicity, marital status, education level, occupation, monthly income, and locality. It also contains open-ended questions about the specific traditional herbal medicinal consumed and the monthly expenditure on them. Additionally, it asks about the person who encourages the respondents to consume these herbal medicinal, the frequency of consumption, and the diseases they have suffered from.

Section B covers questions regarding consumers' understanding of the advantages of traditional herbal medicinal, potential side effects, and the sources from which they gather this information, such as the older generation, the internet, print media, or professional practitioners. Additionally, it explores consumers' knowledge of technological advancements in medicinal plant-based products and emphasises the importance of medical professionals being knowledgeable about traditional herbal medicinal.

In Section C, the questionnaire items investigate consumers' attitudes towards the effectiveness and safety of traditional herbal medicinal. It also evaluates whether consumers use herbal medicinal under the guidance of medical professionals and their attitude towards consuming them alongside modern medicine. The final section focuses on consumers' practices regarding traditional herbal medicinal, specifically if they only use them when recommended by doctors or if they combine them with modern medicine. Additionally, it includes questions about the type of products used, such as self-planted or processed products, as well as the methods of consumption for external or internal use, such as raw consumption, decoction, infusion, or poultice.

RESULTS AND FINDINGS

Profile of Traditional Herbal Medicinal Consumers in Besut

The results of the traditional herbal medicinal consumers' demographic profile, sources of knowledge about traditional herbal medicinal, frequency of use, diseases, and the types of traditional herbal medicinal that are frequently used and familiar to the consumers are illustrated in Table 1. A descriptive analysis was conducted to gather details about the respondents, including their age, gender, religion, ethnicity, marital status, education level, occupation, monthly income, and place of residence. In addition, the study reported on the frequency of traditional herbal medicine usage, sources of knowledge about traditional herbal medicinal, and monthly estimated expenses for traditional herbal medicinal. There were 46 (30.7%) male and 104 (69.3%) female consumers, with a response rate of 100% from the survey. According to the study by Sulaiman et al. (2017), females considered herbal product consumption to be relatively more significant compared to males, who regarded it as only marginally important. In their study on medicinal plant knowledge, Torres-Avilez et al. (2016) categorised women's societal roles as partners and daughters, emphasising their responsibilities in health management, including diagnosing illnesses and understanding prognosis, within the context of gender-based comparative research. In contrast, males are tasked with overseeing household finances and supplying resources, which results in them having a greater understanding of natural resources for different purposes, such as construction (Torres-Avilez et al., 2016).

The findings proved that the number of traditional herbal medicine respondents is between 21 and 30 years old, which is 53 (35.3%). The results indicate a positive attitude among youth respondents. Young individuals may perceive herbal medicine as a more holistic and gentle approach to healthcare (Welz, 2018). Some young adults may hold positive attitudes towards herbal medicinal, perceiving them as effective remedies for various health concerns. They might believe that herbal medicinal have the potential to alleviate symptoms or improve overall well-being. Education or awareness campaigns about herbal medicine can provide young adults with a more informed perspective. Access to accurate and unbiased information can influence their attitudes and beliefs, allowing them to make informed decisions about their healthcare choices (El-Dahiyat, 2020).

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The respondents who are married are 96 (64%), which is higher, while 46 (30.7%) are single. This is due to the fact that women have a tendency to favor traditional herbal medicinal for postpartum care and to improve their reproductive system, while men possess knowledge about the beneficial uses of natural resources. Many individuals prioritize herbal remedies over conventional medicine due to their perceived significance in promoting health and well-being, especially during pregnancy (Yusof J., 2016).

The 139 (92.7%) of the respondents had an educational background, which is 11 (7.3%) primary school, 80 (53.4%) secondary school, and 26 (17.3%) college or university, showing a wider awareness among them and a greater concern for health by choosing natural-based products. Numerous research studies have found that sociodemographic factors such as age, gender, education level, ethnicity, occupation, and religion play a significant role in determining the use of herbal medicine (Aljofan, 2020). According to the study, individuals with higher educational levels tend to be more engaged in researching medicinal plants, which increases the likelihood of using herbal remedies (Vujicic & Cohall, 2021). Additionally, research conducted among adults in the United States revealed a correlation between higher levels of education and an increased utilisation of herbal supplements (Rashrash et al., 2017).

The consumers from rural areas are 101 (67.3%), while 49 (32.7%) are from urban areas. Based on these data, it can be inferred that traditional herbal medicinal are most widely used by the community in rural areas. The usage of herbal medicinal is higher in rural areas due to the abundant presence of medicinal plants in such locations compared to urban surroundings. Additionally, herbal medicinal are more economically and physically accessible to rural communities compared to biomedical services (De Sousa, 2022). People living in rural areas are more likely to be exposed to medicinal plants because of their greater availability and accessibility in those regions (Catublas, 2016). Additionally, because it is the most readily available and reasonably priced form of therapy, traditional medicine utilising medicinal plants continues to be the main healthcare system in Medan's resource-poor neighbourhoods (Siregar et al. 2018).

the majority of respondents are Islam 137 (91.3%) and Malay 137 (91.3%), as they are the main population in Besut, Terengganu. The consumption of herbal products is often influenced by cultural and ethnic factors. Traditional remedies and practices are passed down through generations in different cultures (Abdelmola, 2021). The cultural background of individuals has a notable impact on shaping the customs and beliefs associated with herbal medicine usage (Dores, 2023). People often derive these remedies from natural plant sources and believe they hold healing properties specific to their respective cultures.

Furthermore, the data shows that 71 (47.3%) of the respondents are self- employed. Among the jobs performed by the respondents are small-scale farming and business. Their work in agriculture, such as planting sweet potatoes, rice, and vegetables, requires a lot of physical labor. Therefore, they have been practicing the consumption of herbs like turmeric to enhance their bodies' immunity. Studies show that turmeric contains curcumin, an antioxidant that supports the function of the human immune defense system (Azizi, 2020). Furthermore, the number of respondents who are not working or retired is 11 (7.3%). Based on the survey results, there are several respondents who consume traditional herbal medicine in the form of processed juice or capsules purchased by their children.

Besides that, the majority of respondents, 133 (88.7%), have a monthly income of less than RM2,000. This proves that low income does not hinder individuals from taking traditional herbal medicinal in their lives. Mohamad and Ahmad (2021) found that individuals with low incomes in Malaysia still use herbal medicinal. Despite having limited financial resources, people continue to rely on herbal remedies for various health purposes. Furthermore, 11 (7.3%) respondents have a monthly income of RM 2,100– RM 3,000, and 4 (2.7%) respondents have an income of RM 4,100 and above. Furthermore, 2 (1.3%) respondents fall into the category of having the lowest recorded monthly income of RM 3,100–RM 4,000.

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Table 1: Profile of Traditional Herbal Medicinal Consumers in Besut

Variables	Frequency (n=150)	Percentage (%)
Gender		
Male	46	31
Female	104	69
Age		
<20	15	10
21-30	53	35.3
31-40	27	18
41-50	26	17.3
51-60	17	11.4
>60	12	8
Marital Status		
Single	46	30.7
Married	96	64
Others	8	5.3
Level of Education		
No formal education	11	7.3
Primary	11	7.3
Secondary	53.4	53.4
College/University	17.3	17.3
Residential Location		
Urban	49	32.7
Rural	101	67.3
Religion		
Islam	137	91.3
Buddhist	9	6.0
Hindu	3	2.0

Christian	1	0.7
Ethnics		
Malay	137	91.3
Chinese	10	6.7
Indian	3	2.0
Working Level		
Study	7	4.7
Government	3	2.0
Private	58	38.7
Self-employed	71	47.3
Not working / retired	11	7.3
Income per Month		
< RM 2,000	133	88.7
RM 2,100 - RM 3,000	11	7.3
RM 3,100 - RM 4,000	2	1.3
> RM 4,100	4	2.7

Source: Survey, 2024

The Pattern of Consumers' Purchasing Behavior in Besut, Terengganu

From Table 2, monthly expenses for traditional herbal medicinal showed that 52 respondents (34.7%) spent RM 10.00 or less on traditional herbal medicine in a month. The survey conducted revealed that the majority of respondents solely utilised traditional herbal medicine cultivated in their own yards. Aloe vera and 'Pegaga' are among the traditional herbal medicinal cultivated by respondents. Besides, 32 (21.3%) have spent RM 51.00 and above per month on purchasing products based on herbal medicinal. Furthermore, they have purchased herbal medicinal processed into capsules and juices, spending RM 51.00 and above.

The findings proved that 79 (52.6%) used traditional herbal medicinal based on recommendations from family and friends. These findings indicate that traditional knowledge of medicinal plants is often transmitted through oral communication within families (Nuraeni & Rustaman, 2019). According to Frawley J. (2015), women are highly likely to self-administer herbal medications for the purpose of treating or preventing illnesses.

In addition, the number of respondents who take traditional herbal medicinal based on personal preference is 54 (36.0%). Several factors can influence the preference for and use of traditional medicinal based on personal preference. These factors include various aspects such as sociodemographic and economic attributes, cultural influences, environmental factors, age, level of education, occupation, religious beliefs, marital status, the attitude of healthcare providers, religious perspectives on traditional medicine, and proximity to health facilities (Chali et al., 2021). Furthermore, the frequency of usage of traditional herbal medicinal as needed or recommended is 59 (39.3%). Besides, the number of respondents that took traditional herbal medicinal once a

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week is 45 (30%), while 37 (24.7%) consumed them every day and only 9 (6%) took them once a month. According to Kautsar et al. (2016), Malaysia's purchasing trends for items based on herbs are frequency of using herbal medicine, customer loyalty, and purchase intention.

The study shows that the highest number of respondents, 123 (82%), have other types of diseases. Among the diseases involved are sinusitis, skin diseases, cholesterol, and obesity. Despite not being categorized as chronic, they still take herbal medicinal to enhance their body's immunity. Furthermore, chronic diseases such as heart disease and cancer recorded 4 (2.7%) and 1 (0.7%) respondent, respectively. The number of respondents with high blood pressure and diabetes is 29 (19.3%) and 21 (14.0%), respectively.

With 127 (84.7%) responders, earlier generations provide the most knowledge sources. Regarding information about traditional herbal remedies, respondents most significantly rely on past generations—such as parents or grandparents. With 62 (41.3%) respondents, the internet also ranks second highest among sources of information regarding traditional herbal remedies. Thanks to technological developments, everyone nowadays may rapidly and simply access knowledge via the internet. They just go on websites or social media platforms looking for information about herbal remedies using cell-phones.

Table 2: Pattern of Consumers' Purchasing Behavior

Variables	**Frequency (n)**	**Percentage (%)**
Monthly expenses on traditional herbal		
medicinal		
< RM 10	52	34.7
RM 11 - RM 20	29	19.3
RM 21 - RM 30	14	9.3
RM 31 - RM 40	4	2.7
RM 41 - RM 50	19	12.7
> RM 51	32	21.3
Person who recommended to use		
traditional herbal medicinal		
Family / Friends	79	52.6
Personal Preference	54	36.0
Medical Practitioner	4	2.7
Herbal Medicine Seller	13	8.7
Frequency usage of traditional		
herbal medicinal		
Every Day	37	24.7
Once A Week	45	30.0
Once A Month	9	6.0

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As Needed / Recommended	59	39.3
Disease (more than one response)		
Heart Disease	4	2.7
High Blood Pressure	29	19.3
Diabetes	21	14.0
Cancer	1	0.7
Others	123	82.0
Source of knowledge (more than one response)		
Ancestors	127	84.7
Internet	62	41.3
Print Media	17	11.3
Medical Professionals/Seminars	24	16

Source: Survey, 2024

Traditional herbal medicinal familiar/used by respondents

Table 3 provides an overview of the traditional herbal medicinal recognised/used by the respondents. Among the various options, 'Halia' stands out as the most widely acknowledged traditional herbal medicine, with 133 (88.7%) of the participants in this survey. This indicates a significant level of familiarity and acceptance of 'Halia' as a preferred choice among consumers in the context of traditional herbal remedies, according to the survey findings. People have used ginger, a well-known herbaceous plant, extensively as both a spice and a herbal remedy for generations. The traditional practice of consuming ginger rhizome is a common method for alleviating various common health issues such as pain, nausea, and vomiting (Anh et al., 2020).

Furthermore, Aloe vera ranks as the second most familiar traditional herbal medicine among the respondents, at 129 (86.0%). Following closely is 'Pegaga' with 128 (85.3%) expressing familiarity. This highlights a considerable level of awareness and acceptance of Aloe vera and 'Pegaga' within the surveyed population, emphasising their standing as widely recognised traditional herbal remedies. Most respondents are familiar with 'Pegaga' due to its easy accessibility and cultivation around the house. 'Pegaga' thrives in a wide range of tropical or wet pantropical regions, including rice paddies, as well as rocky areas at higher altitudes (Gohil et al., 2010).

Table 3: List of traditional herbal medicinal familiar/used by respondents

Traditional Herbal	**Scientific Name***	**Frequency (n)**	**Percentage (%)**
Halia	Zingiber officinale Rosc	133	88.7
Pegaga	Centella asiatica (L.) Urb	128	85.3
Mengkudu	Morinda citrifolia Linn	78	52.0
Misai Kucing	Orthosiphon stamineus Benth	91	60.7
Roselle	Hibiscus sabdariffa L.	78	52.0
Belalai Gajah	Clinachanthus nutans Lindau (CN)	54	36.0

Sirih	Piper betle L.	131	87.3
Peria Katak	Momordica charantia L	110	73.3
Dukung Anak	Phyllanthus niruri L.	66	44.0
Hempedu Bumi	Andrographis paniculata Wall.	50	33.3
Sambung Nyawa	Gynura procumbens (Lour.) Merr.	36	24.0
Tongkat Ali	Eurycoma longifolia Jack	118	78.7
Kacip Fatimah	Labisia pumila Benth. & Hook. f.	110	73.3

Source: Survey, 2024

*Note: The local traditional medicinal plant names and their corresponding scientific names were extracted from the book "MEDICINAL PLANTS AND CONSUMERS' THOUGHTS IN EAST COAST ECONOMIC REGION" authored by Nalini Arumugam, Nurul Imanina, and Khamsah Muhammad.

Consumers' perception of traditional herbal medicines based on knowledge

Table 4 shows several statements to measure the level of respondents' knowledge about traditional herbal medicines. The respondents agreed upon a total of five statements, with a mean of 4.0 and above. In addition, respondents almost agreed on two statements, with a mean value ranging from 3.5 to 3.99. Furthermore, the respondents do not agree on three statements, which have a mean value of 3.49 and below.

Among the statements with a mean value of 4.0 and above is the one related to health benefits. A total of 136 (90.7%) with a mean value of 4.46 agreed with this statement. This indicates that they have knowledge about the importance of traditional herbal medicines for health. The second statement is about using traditional herbal medicines as supplementary food to maintain personal health. A total of 133 (88.7%) with a mean value of 4.31 agreed that traditional herbal medicines can serve as supplementary food for personal health. Furthermore, 132 (88%) with a mean value of 4.29 agreed that traditional herbal medicines have the potential to be used both internally and externally. The next statement, with a mean value of 4.31, indicates that 128 (85.3%) agreed that traditional herbal medicine can be enhanced through knowledge. Furthermore, 118 (78.7%) with a mean value of 4.14 agreed that traditional herbal medicines should be included in the medical doctor's syllabus.

After that, there are two statements with mean values ranging from 3.5 to 3.99, indicating that respondents almost agree with the statements. The first statement is related to the abundance of products on the market. The percentage of those who agree that there is an abundance of traditional herbal medicine products is just below 70%, specifically 104 (69.4%), with a mean value of 3.91. This indicates that the community is aware of the abundance of products based on traditional herbal medicine on the market. Among the herbal medicine products sold are those in the form of raw materials, semi-finished products, and finished products. Various herbal-based products are sold on the market and are in high demand. Herbal-based products are available in three forms on the market: raw materials (fresh or dried plants), semi-finished products (extracts), and finished products (food products and other value-added products) (Kamaruzaman, 2022). Next, statements about traditional herbal medicine develop with technological advancements. The mean value for the statement is 3.94, with 103 (68.6%) of respondents agreed. This data indicates that a larger proportion of the community is sensitive to the modernization of herbal medicine production.

Besides, there are three statements displayed with a mean below 3.49, indicating that respondents do not agree with the statements. The first statement is about having side effects if taken excessively. A total of 76 (50.7%) with a mean value of 3.32 disagreed with the statement. This is because most of the community believes that naturally derived medications will not be harmful to health, even when consumed in large quantities. However, the seriousness of this issue is often not emphasised, despite the possibility of users experiencing side effects after taking herbal medicines. The adverse and harmful effects of herbal medicines utilised in traditional communities

are usually not documented, and this is commonly referenced to support their perceived safety (Davey, 2019). Next, the statement about attending seminars to learn about herbal medicines has a mean value of 2.56, with 102 (67.9%) disagreeing. This is because most respondents acquire knowledge about traditional herbal medicines from experienced family members. Respondents disagreed with the statement about government agencies monitoring the cultivation of traditional herbal medicine. Many respondents disagree with this statement because they believe that anyone can cultivate herbal medicines without oversight from higher authorities, as indicated by the mean value of 3.27 with 71 (47.3%).

Table 4: Consumers' perception of traditional herbal medicines based on knowledge

		Strongly Disagree		**Disagree**		**Neutral**		**Agree**		**Strongly Agree**		
No	**Statements**											**Mean**
		n	%	n	%	n	%	n	%	n	%	
1.	I know about traditional herbal medicine beneficial for health.	1	0.7	0	0	13	8.7	51	34.0	85	56.7	4.46
2.	I know about traditional herbal medicine has side effects if taken excessively.	22	14.7	13	8.7	41	27.3	43	28.7	31	20.7	3.32
3.	I know about traditional herbal medicine beneficial used as a supplementary food to maintain personal health.	1	0.7	2	1.3	14	9.3	66	44.0	67	44.7	4.31
4.	I know about traditional herbal medicine attending seminars about it.	56	37.3	17	11.3	29	19.3	33	22.0	15	10.0	2.56
5.	I know about traditional herbal medicine used internally or externally.	2	1.3	2	1.3	14	9.3	64	42.7	68	45.3	4.29
6.	I know about traditional herbal medicine cultivation is monitored by government agencies.	27	18.0	17	11.3	27	18.0	46	30.7	33	22.0	3.27
7.	I know about traditional herbal medicine abundance of products in the market.	5	3.3	7	4.7	34	22.7	55	36.7	49	32.7	3.91
8.	I know about traditional herbal medicine developed with technological advancements.	4	2.7	10	6.7	33	22.0	47	31.3	56	37.3	3.94
9.	I know about traditional herbal medicine can be enhanced through knowledge.	3	2.0	3	2.0	16	10.7	51	34.0	77	51.3	4.31
10.	I know about traditional herbal medicine should be included in medical doctor syllabus. should be included in medical doctor syllabus.	8	5.3	6	4.0	18	12.0	43	28.7	75	50.0	4.14

Consumers' perception of traditional herbal medicines based on attitude

Table 5 shows several statements to measure the level of respondents' attitude towards traditional herbal medicines. There are six statements overall that the respondents agree on, with a mean of 4.0 and above. Additionally, with a mean value ranging from 3.5 to 3.99, the respondents are almost unanimous on two statements. Furthermore, the respondents do not agree on two statements, with a mean value of 3.49 and below.

Among the statements agreed upon by respondents is one related to traditional herbal medicine offering benefits for the long term. A total of 118 (78.7%) with a mean value of 4.26 agreed with this statement. This indicates that respondents have a high level of confidence in the efficacy of traditional herbal medicines if they are

practiced in their daily lives. The second statement is about the willingness to recommend the use of traditional herbal medicine to others. A total of 121 (80.7%) with a mean value of 4.25 agreed to influence others to use traditional herbal medicine because they believe in its benefits for the body's health. Furthermore, 121 (80.7%) with a mean value of 4.24 expressed high satisfaction with the effects of traditional herbal medicine. A total of 136 (90.6%) respondents, with a mean value of 4.47, agreed with the statement related to the use of traditional herbal medicines containing natural ingredients. The next statement, with a mean value of 4.30, indicates that 118 (78.7%) agreed that the use of traditional medicine is safe. A total of 123 (82%) with a mean value of 4.28 agreed that traditional herbal medicines can strengthen the body's defences and promote self-healing.

After that, there are two statements with mean values ranging from 3.5 to 3.99, indicating that respondents almost agree with the statements. The first statement relates to the need for consulting an expert before using traditional herbal medicine. A total of 94 (62.6%) respondents with a mean value of 3.75 almost agreed with this statement. The second statement discusses the lengthy time required to observe the effectiveness of traditional herbal medicine. This statement had 78 (52%) respondents with a mean value of 3.51, indicating that they almost agreed with it.

Besides, the first statement that respondents did not agree with was about traditional herbal medicine being able to be taken alongside modern medicine. A total of 93 (62%) with a mean value of 2.97 disagreed with this statement. Next, 72 (48%) with a mean value of 3.29 indicated that respondents did not agree with the statement regarding the need for monitoring by medical professionals in hospitals or clinics for the use of traditional herbal medicine.

Table 5: Consumers' perception of traditional herbal medicines based on attitude

		Strongly Disagree		**Disagree**		**Neutral**		**Agree**		**Strongly Agree**		
No	**Statements**											**Mean**
		n	%	n	%	n	%	n	%	n	%	
1.	Use of traditional herbal medicine can be taken/used alongside modern medicine.	32	21.3	31	20.7	30	20.0	24	16.0	33	22.0	2.97
2.	Use of traditional herbal medicine requires reference to scientific studies.	8	5.3	9	6.0	39	26.0	50	33.3	44	29.3	3.75
3.	Use of traditional herbal medicine provides results that take some time to manifest.	11	7.3	13	8.7	48	32.0	44	29.3	34	22.7	3.51
4.	Use of traditional herbal medicine offers benefits for the long term.	2	1.3	3	2.0	27	18.0	40	26.7	78	52.0	4. 26
5.	Use of traditional herbal medicine should be Monitored by medical professionals in hospitals or clinics.	25	16.7	12	8.0	35	23.3	50	33.3	28	18.7	3.29
6.	Use of traditional herbal medicine I would recommend it to others.	2	1.3	3	2.0	24	16.0	48	32.0	73	48.7	4.25
7.	Use of traditional herbal medicine I am very satisfied with its effects.	0	0	4	2.7	25	16.7	52	34.7	69	46.0	4.24
8.	Use of traditional herbal medicine contains natural ingredients.	0	0	2	1.3	12	8.0	50	33.3	86	57.3	4.47
9.	Use of traditional herbal medicine is safe.	0	0	1	0.7	31	20.7	40	26.7	78	52.0	4.30
10.	Use of traditional herbal medicine builds body's defences and promotes self-healing.	1	0.7	3	2.0	23	15.3	49	32.7	74	49.3	4.28

Consumers' perception of traditional herbal medicines based on practice

Table 6 shows several statements to measure the level of respondents' practices towards traditional herbal medicines. There are six statements overall that the respondents agree on, with a mean of 4.0 and above. Additionally, with a mean value ranging from 3.5 to 3.99, there is one statement that the respondents almost unanimously agree on. Furthermore, the respondents did not agree upon four statements, which had a mean value of 3.49 and below.

Among the statements agreed upon by respondents, one related to taking traditional herbal medicine as a supplementary food. A total of 110 (73.3%) with a mean value of 4.07 agreed with this statement. This indicates that the majority of respondents have taken traditional herbal medicines as a supplement to enhance their body's immunity. The second statement is about taking traditional herbal medicine because they believe in its effectiveness. A total of 113 (75.3%) with a mean value of 4.11 agreed that traditional herbal medicines can have positive effects on a person's health.

After that, there are four statements with mean values ranging from 3.5 to 3.99, indicating that respondents almost agree with the statements. The first statement is about taking traditional herbal medicine in its raw form. A total of 84 (56%) respondents with a mean value of 3.57 almost agreed with this statement. Almost all respondents take traditional herbal medicines by drinking their boiled decoction, as indicated in the second statement. A total of 110 (73.3%) respondents with a mean value of 3.91 showed that almost all respondents take traditional herbal medicines by drinking their boiled decoction. Furthermore, 109 (72.7%) respondents with a mean value of 3.93 almost agreed with the statement about taking traditional herbal medicine for external applications. A few respondents in the survey treated minor external wounds using 'Daun kapal terbang' and left it until the wound dried. In addition, 114 (76%) respondents with a mean value of 3.94 almost agreed with the statement about taking traditional herbal medicine in the form of ready-to-use processed products.

Besides, there are four statements that display a mean below 3.49, indicating that respondents do not agree with the statements. The first statement is about taking traditional herbal medicine alongside modern medicine. A total of 100 (66.6%) respondents with a mean value of 2.73 disagreed with this statement. This indicates that respondents do not practice taking traditional herbal medicine concurrently with modern medicine, possibly due to concerns about the potential negative effects on the body. Next is the statement about taking traditional herbal medicine cultivated by oneself. A total of 63 (41.9%) respondents, with a mean value of 3.37, disagreed with this statement. These findings indicate that respondents obtain traditional herbal medicines through purchases rather than self-cultivation. Additionally, 59 (39.3%) respondents disagreed with the statement about taking traditional herbal medicine if a doctor recommends it, with a mean value of 3.49. The respondents disagreed with the last statement regarding experiencing side effects after taking traditional herbal medicine. The majority of respondents, 112 (74.7%) with a mean value of 2.44, disagreed with this statement. This indicates that they have not experienced any negative effects while taking traditional herbal medicines.

Table 6: Consumers' perception of traditional herbal medicines based on practice

		Strongly Disagree		**Disagree**		**Neutr al**		**Agre e**		**Strongly Agree**		
No	**Statements**											**Mean**
		n	%	n	%	n	%	n	%	n	%	
1.	I am taking traditional herbal medicine as a supplementary food/supplement.	3	2.0	6	4.0	31	20.7	48	32.0	62	41.3	4.07
2.	I am taking traditional herbal medicine alongside modern medicine.	45	30.0	17	11.3	38	25.3	34	22.7	16	10.7	2.73

3.	I am taking traditional herbal medicine cultivated by oneself.	29	19.3	11	7.3	23	15.3	50	33.3	37	24.7	3.37
4.	I am taking traditional herbal medicine if recommended by a doctor.	24	16.0	6	4.0	29	19.3	54	36.0	37	24.7	3.49
5.	I am taking traditional herbal medicine and have experienced side effects after taking it.	55	36.7	29	19.3	28	18.7	21	14.0	17	11.3	2.44
6.	I am taking traditional herbal medicine because I believe in its effectiveness.	4	2.7	1	0.7	32	21.3	50	33.3	63	42.0	4.11
7.	I am taking traditional herbal medicine in its raw form.	14	9.3	14	9.3	38	25.3	41	27.3	43	28.7	3.57
8.	I am taking traditional herbal medicine by drinking its boiled decoction.	13	8.7	2	1.3	25	16.7	56	37.3	54	36.0	3.91
9.	I am taking traditional herbal medicine for external applications.	10	6.7	6	4.0	25	16.7	52	34.7	57	38.0	3.93
10.	I am taking traditional herbal medicine in the form of ready-to-use processed products.	16	10.7	1	0.7	19	12.7	54	36.0	60	40.0	3.94

Pearson-Correlation Analysis

The study utilized Pearson-Correlation Analysis to examine how closely linked independent and dependent variables are. This method calculates correlation coefficients, which show the strength and direction of the relationship between two variables in a linear manner. A coefficient close to +1 means a strong positive relationship, near -1 suggests a strong negative relationship, and a coefficient around 0 implies a weak or no linear connection. By using this analysis, the study gains insights into how changes in one variable relate to changes in another, providing a clear picture of the associations between different factors in the research.

Table 7: Pearson correlation

DV **IV**		**Practices**	
	Pearson Correlation	Significant Value	Strength of Relationship
Attitude	0.796	.000	High relationship
Knowledge	0.741	.000	High relationship

Table 7 above shows the Pearson correlation results for independent variables (knowledge and attitude) and provides insights into the high relationship and significance with the dependent variable (practice). For

knowledge, the correlation coefficient is 0.741 with a p-value of 0.000, indicating that a greater understanding of traditional herbal medicines is strongly associated with increased engagement in related practices. Similarly, attitude exhibits a strong positive correlation with the dependent variable, boasting a coefficient of 0.796 and a p-value of 0.000. This signifies that individuals with positive attitudes towards herbal medicines are more inclined to participate in herbal practices.

Hence, this is correlated with the outcome of this research, which shows that the connection between attitude and practice is more significant than the link between knowledge and practice, indicating that individuals are more likely to use traditional herbal medicines when they possess positive attitudes and beliefs. The implication is that individuals are more inclined to consume traditional herbal medicines when they possess positive attitudes and beliefs, suggesting that the psychological aspect of perception and acceptance plays a crucial role in influencing behavior. Individuals who have positive attitudes towards traditional herbal medicines may be more inclined to practice them than those who only have a limited amount of understanding.

CONCLUSION

The results of this study underline the great cultural and social importance of traditional herbal medicine (THM) in Besut, Terengganu. Particularly appreciating its natural composition and long-term health advantages, consumers show a great degree of understanding and a good attitude toward THM. Still, there are gaps in knowledge about the possible negative effects of THM mixed with contemporary medication and the requirement of professional advice. The significant link among knowledge, attitude, and behavior implies that informed customers are more inclined to embrace and promote THM. Including THM awareness into public health education and encouraging cooperation between traditional and modern healthcare practitioners is absolutely vital to guarantee the safe and efficient use of herbal treatments. THM may remain a great part of health and wellness in the society by filling knowledge gaps and supporting responsible consumption.

REFERENCES

1. Abdelmola, A. O., Bahri, A., Abuallut, I., Refaei, B. A., Hakami, W. K., Abutaleb, A. K., Mahzari, S. M., Mashragi, M. A., Es'haq, S. A., & Aldarbi, K. F. (2021). Prevalence, knowledge, and perception about the use of herbal medicines jazan - Saudi Arabia. *Journal of family medicine and primary care*, *10*(6), 2386–2393. https://doi.org/10.4103/jfmpc.jfmpc_2475_20
2. Abdillah, A., Sulaeman, A., & Sinaga, T. (2020). Perceptions and lipid profiles of mixed herbal drink (garlic, ginger, lemon, honey, and apple vinegar) consumers with hypercholesterolemia. Media Gizi Indonesia, 15(3), 167. https://doi.org/10.20473/mgi.v15i3.167-172
3. Ali, H., Alharbi, S., Iskandar, R., Mira, G., Yanogue, A., & Alboualy, E. (2024). Perception and use of herbal medicine in general practice patients: a cross-sectional study in saudi arabia. Cureus. https://doi.org/10.7759/cureus.56806
4. Aljofan, M., & Alkhamaiseh, S. (2020). Prevalence and Factors Influencing Use of Herbal Medicines During Pregnancy in Hail, Saudi Arabia: A cross-sectional study. *Sultan Qaboos University medical journal*, *20*(1), e71–e76. https://doi.org/10.18295/squmj.2020.20.01.010.
5. Alyami, H., Orabi, M., Aldhabbah, F., Alturki, H., Aburas, W., Alfayez, A., … & Alsuhaibani, N. (2020). Knowledge about covid-19 and beliefs about and use of herbal products during the covid-19 pandemic: a cross-sectional study in saudi arabia. Saudi Pharmaceutical Journal, 28(11), 1326-1332. https://doi.org/10.1016/j.jsps.2020.08.023
6. Arumugam, N (2019). Knowledge, Attitudes and Practices (KAP) Towards Medicinal Plants Among Malaysian Consumers. Med Aromat Plants (Los Angeles) 8: 341. doi: 10.35248/2167-0412.19.8.341
7. Awang, P. (2015). SEM made simple: A gentle approach to learning Structural Equation Modeling. MPWS Rich Publication, Bangi.

8. Besut District Council. (2021). *Besut District Background*. Besut District Council Official Portal. https://mdb.terengganu.gov.my/index.php/ms/mdb/profil/latar- belakang. Accessed on 25th August 2023.
9. Catublas, H. A. L. (2016). Knowledge, attitudes and practices in the use of herbal medicine: the case of urban and rural mothers in the philippines. *Mahidol Univ J Pharm Sci*, *43*(1), 1-16.
10. Chali, B. U., Hasho, A., & Berhanu, N. (2021). Preference and practice of traditional medicine and associated factors in Jimma Town, southwest Ethiopia. *Evidence- based Complementary and Alternative Medicine*, *2021*, 1–7. https://doi.org/10.1155/2021/9962892
11. Davey, M. (2019, April 10). Herbal medicines can have dangerous side effects, research reveals. *The Guardian*. https://www.theguardian.com/australia- news/2017/feb/06/herbal-medicines-can-have-dangerous-side-effects-research- reveals. Accessed on 8th June 2023.
12. De Sousa, B. M., Albuquerque, U. P., & Araújo, E. L. (2022). Easy Access to Biomedicine and Knowledge about Medicinal Plants: A Case Study in a Semiarid Region of Brazil. *Evidence-based complementary and alternative medicine: eCAM*, *2022*, 5073625. https://doi.org/10.1155/2022/5073625
13. Dores, A. R., Peixoto, M., Castro, M., Sá, C., Carvalho, I. P., Martins, A., Maia, E., Praça, I., & Marques, A. (2023). Knowledge and Beliefs about Herb/Supplement Consumption and Herb/Supplement-Drug Interactions among the General Population, including Healthcare Professionals and Pharmacists: A Systematic Review and Guidelines for a Smart Decision System. *Nutrients*, *15*(10), 2298. https://doi.org/10.3390/nu15102298.
14. El-Dahiyat, F., Rashrash, M., Abuhamdah, S., Abu Farha, R., & Babar, Z. U. (2020). Herbal medicines: a cross-sectional study to evaluate the prevalence and predictors of use among Jordanian adults. *Journal of pharmaceutical policy and practice*, *13*, 2. https://doi.org/10.1186/s40545-019-0200-3.
15. Fansia, R., Indasah, I., & Ambarika, R. (2023). Effect of availability of a variety of herbal medicine product, price, and decision to purchase herbal medicine product on consumer repurchase intention in the technical implementation unit of the herbal materia medica laboratory. International Journal of Science and Healthcare Research, 8(4), 119-123. https://doi.org/10.52403/ijshr.20230416
16. Fikayuniar, L., Warsito, A., Irma, R., & Susanti, E. (2023). Content of medicinal chemicals in traditional herbal medicine: a systematic literature review. Eureka Herba Indonesia, 5(1), 394-399. https://doi.org/10.37275/ehi.v5i1.105
17. Frawley, J., Adams, J., Steel, A., Broom, A., Gallois, C., & Sibbritt, D. (2015). Women's Use and Self-Prescription of Herbal Medicine during Pregnancy: An Examination of 1,835 Pregnant Women. *Women's health issues: official publication of the Jacobs Institute of Women's Health*, *25*(4), 396–402. https://doi.org/10.1016/j.whi.2015.03.001.
18. Gohil, K. J., Patel, J. A., & Gajjar, A. K. (2010). Pharmacological Review on Centella asiatica: A Potential Herbal Cure-all. *Indian journal of pharmaceutical sciences*, *72*(5), 546–556. https://doi.org/10.4103/0250-474X.78519
19. Ithnain, N., Panting, A., Kassim, R., Amirudin, N., & Krishnan, M. (2020). Perception of conventional medicine and herbal medicine usage amongst diabetic patients: a qualitative study in negeri sembilan, malaysia. Global Journal of Health Science, 12(10), 122. https://doi.org/10.5539/gjhs.v12n10p122
20. Izzati, I., Marvel, M., & Komala, I. (2021). The overview of knowledge, belief, and side effects of using herbal medicinal in south tangerang, banten, indonesia.. https://doi.org/10.4108/eai.26-10-2020.2311326
21. Kamaruzaman, S. R. S. (2022, August 25). *Potensi herba sebagai rawatan Alternatif (Bahagian 3) – Angkasfera*. https://angkasfera.com/2022/08/25/potensi-herba- sebagai-rawatan-alternatif-bahagian-3/. Accessed on 20th June 2022.
22. Kautsar, A. P., Ayunovani, F. S. M., & Surahman, E. (2016). The influence of demographic, social system, communication system, and herbal characteristics on purchase decisions of herbal medicine in Indonesia. *Journal of Economics, Business and Management*, *4*(3), 235-238.
23. Kristianto, H., Pramesona, B., Rosyad, Y., Andriani, L., Putri, T., & Rias, Y. (2022). The effects of beliefs, knowledge, and attitude on herbal medicine use during the covid-19 pandemic: a cross-sectional survey in indonesia. F1000research, 11, 483. https://doi.org/10.12688/f1000research.116496.3
24. Kundu, D., Sarker, S., Khan, A., & Samadder, M. (2022). Beyond knowledge, attitude and practice (kap): a study on the covid-19 pandemic situation in bangladesh. Social Science Review, 38(1), 33-52. https://doi.org/10.3329/ssr.v38i1.56523
25. Lee, M., Kang, B., & You, M. (2021). Knowledge, attitudes, and practices (kap) toward covid-19: a cross-sectional study in south korea. BMC Public Health, 21(1). https://doi.org/10.1186/s12889-021-10285-y

26. Mohamad, R. B., & Ahmad, T. (2021). Tumbuh-Tumbuhan ubatan dalam hadith tersenarai kini sebagai terancam: Kajian Intertekstual Klasik-Data Saintifik. *Journal of Hadith Studies*, 70–91. https://doi.org/10.33102/johs.v6i1.129
27. Nalini Arumugam, Nurul Imanina Kamal Bahri and Khamsah Suryati Mohd (2023). **Medicinal Plants and Consumers' Thoughts In the East Coast Economic Region**. Penerbit UNISZA. ISBN: 978-967-2750-50-5
28. Nuraeni, H., & Rustaman, N. Y. (2019). Traditional knowledge of medicinal plants for health of women in Cibodas Village Lembang Subdistrict West Bandung Regency and their potency to development of biodiversity education. *Journal of Physics: Conference Series*, *1157*(2). https://doi.org/10.1088/1742-6596/1157/2/022115
29. Rahmawati, S., Rohemah, R., Purmahardini, N., Dian, I., & Lianita, P. (2024). The relationship between herbal medicine consumption in postpartum mothers and the incidence of diarrhea in infants aged 7-40 days at the bulangan haji health center, pakong sub-district, pamekasan.. Journal of Applied Health Management and Technology, 6(2), 70-78. https://doi.org/10.31983/jahmt.v6i2.12230
30. Rashrash, M., Schommer, J. C., & Brown, L. M. (2017). Prevalence and predictors of herbal medicine use among adults in the United States. *Journal of Patient Experience*, *4*(3), 108–113. https://doi.org/10.1177/2374373517706612
31. Salleh HS, Mohamed WN, and Mat NHN et al. (2020). Traditional medicinal from marine resources: Understanding the consumer's knowledge and perceptions. International Journal of Advanced and Applied Sciences, 7(11): 110-118
32. Siregar, R. S., Supriana, T., & Haryanti, S. (2018). The effect of consumers' perception to the satisfaction of use of traditional medicines in Medan. *IOP Science*, *122*, 012004. https://doi.org/10.1088/1755-1315/122/1/012004
33. Suharti, B., Kartika, T., & Sugiyanta, S. (2021). Culture and social: herbal medicine as health communication to build urban community empowerment. Jurnal Studi Komunikasi (Indonesian Journal of Communications Studies), 5(1), 151. https://doi.org/10.25139/jsk.v5i1.3124
34. Sundell, K. and Jönsson, A. (2016). Beliefs about medicinal are strongly associated with medicine-use patterns among the general population. International Journal of Clinical Practice, 70(3), 277-285. https://doi.org/10.1111/ijcp.12781
35. Suryadi, N., Suryana, Y., Komaladewi, R., & Sari, D. (2018). Success factors in creating consumer trust of standardized herbal medicine in east java, indonesia. International Journal of Engineering & Technology, 7(2.29), 1072. https://doi.org/10.14419/ijet.v7i2.29.14315
36. Tillyard, G. and DeGennaro, V. (2018). New methodologies for global health research: improving the knowledge, attitude, and practice survey model through participatory research in haiti. Qualitative Health Research, 29(9), 1277-1286. https://doi.org/10.1177/1049732318816675
37. Torres-Avilez, W. M., De Medeiros, P. M., & Albuquerque, U. P. (2016). Effect of Gender on the Knowledge of Medicinal Plants: Systematic Review and Meta- Analysis. *Hindawi*, *2016*, 6592363. https://doi.org/10.1155/2016/6592363
38. Welz, A. N., Emberger-Klein, A., & Menrad, K. (2018). Why people use herbal medicine: insights from a focus-group study in Germany. *BMC Complementary and Alternative Medicine*, *18*(1). https://doi.org/10.1186/s12906-018-2160-6
39. Widayanti, S., Indah, P., & Setiawan, R. (2023). Conjoin analysis to measure consumer preferences for traditional jamu attributes., 108-116. https://doi.org/10.2991/978-94-6463-168-5_13
40. Yang, K., Liu, H., Ma, L., Wang, S., Tian, Y., Zhang, F., … & Jiang, X. (2020). Knowledge, attitude and practice of residents in the prevention and control of covid-19: an online questionnaire survey. Journal of Advanced Nursing, 77(4), 1839-1855. https://doi.org/10.1111/jan.14718
41. Yuniati, E., Husain, F., Arsi, A., & Wicaksono, H. (2021). Perception of the consumer community on traditional herbal drink of Ngadirgo Semarang. https://doi.org/10.2991/assehr.k.210918.015
42. Yusof, J., Mahdy, Z. A., & Noor, R. M. (2016). Use of complementary and alternative medicine in pregnancy and its impact on obstetric outcome. *Complementary Therapies in Clinical Practice*, *25*, 155–163. https://doi.org/10.1016/j.ctcp.2016.09.005