

ORIGINAL ARTICLE

Qualitative Exploration of the Use, Knowledge and Perceptions of Medicinal Plants Among Bateq Villagers in Taman Negara, Malaysia

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ABSTRACT

Introduction: Medicinal plant use among indigenous people in Malaysia is commonly influenced by cultural beliefs, accessibility to traditional plants, and modern medicine availability. This study explores the usage, knowledge, and perceptions of medicinal plants among the Bateq people in Taman Negara National Park, Pahang. **Materials and methods:** A qualitative study conducted in June 2022 interviewed 12 adult Orang Asli from the Bateq tribe in Kuala Sat, Taman Negara. The qualitative study using face-to-face semi-structured interviews was approved by the Research Ethics Committee of Universiti Teknologi MARA and explored medicinal plant knowledge and usage among the participants. Thematic content analysis was employed for data analysis. **Results:** All participants, aged 18-60, utilized medicinal plants for various health purposes, including chronic diseases and general health maintenance. Older individuals possessed more traditional knowledge, acquired from their elders. Accessibility to medicinal plants in the local environment was emphasized. Despite diverse applications, challenges in obtaining plants in remote areas and the convenience of modern medicine contributed to a decline in traditional plant use. Perceptions varied, with some favoring traditional plants, while others expressed skepticism. **Conclusion:** This study offers insights into medicinal plant use, knowledge, and perceptions among the Bateq community in Taman Negara National Park, Pahang. It emphasizes the importance of preserving traditional knowledge, understanding diverse perceptions, and promoting collaboration between traditional and modern healthcare systems. The findings contribute to a broader understanding of healthcare practices among indigenous communities in Malaysia.

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INTRODUCTION

The indigenous people of Malaysia, also known as Orang Asli, constitute approximately 0.7% of the country's population, totaling around 148,000 individuals [1]. This population is divided into three main groups: Negrito (or Semang), Senoi (or Sakai), and Proto-Malay (or Aboriginal Malay) [2]. Among these groups, the Semang people are recognized as the earliest indigenous inhabitants of Peninsular Malaysia [3]. The Semang people primarily communicate using the

Austroasiatic language, which serves as their recognized mother tongue. Furthermore, the Semang population is subdivided into distinct ethnic subgroups based on physical characteristics, language connections, cultural practices, and geographical settlements.

One such subgroup is the Bateq people, who predominantly reside in the regions of Kelantan and Pahang, with a significant portion currently inhabiting the Taman Negara National Park [4]. The Bateq people maintain a nomadic lifestyle, living in encampments and commonly use natural resources for sustenance. When these resources become depleted, they relocate to other areas. Their profound cultural attachment to the natural environment is evident, as they live in remote areas. Thus, the use of plants is not only common for

basic needs such as food and construction, but also for treating illnesses and maintaining their health.

The use of plants for medicinal purposes among the indigenous people in Malaysia is influenced by factors such as cultural beliefs, accessibility to traditional medicinal plants, as well as the accessibility of modern medicines. Among the indigenous people cultures, medicinal plants play a crucial role in treating a wide range of illnesses, from common ailments such as fever, gastrointestinal disorders, skin problems, to more serious conditions such as diabetes and hypertension [5-7].

Various plant species have been described for their medicinal purposes among the indigenous communities [5]. Traditionally, different parts of plants, including flowers, roots, leaves, rhizomes, and fruits, are used for their therapeutic purposes. These plant parts are then converted into medicinal preparations using various methods such as boiling, pounding, squeezing, drying, and mixing. The mode of administration varies depending on the illnesses, and includes ingestion through drinking, eating, and chewing, as well as topical application [5-8].

The indigenous medical practices may have undergone changes in recent years due to various factors, including environmental crises, climate change, and the erosion of cultural knowledge among the younger indigenous generation. Ecological degradation and destruction, such as extensive deforestation, can lead to the substantial loss of natural ecosystems [9]. This, in turn, increases the risk of extinction for some medicinal plants, potentially limiting indigenous traditional medical practices.

The objective of this qualitative study was to explore the usage, knowledge, and perceptions of medicinal plants among a sample of Orang Asli individuals residing in a village located in Taman Negara National Park, Pahang. The study can uncover current utilization of medicinal plants, as well as the evolving perceptions surrounding their use among the Orang Asli population in the specified village.

MATERIALS AND METHODS

Study design

The present qualitative study was carried out in June 2022, among a sample of Orang Asli from the Bateq tribe village located in Kuala Sat, Taman Negara National Park, Pahang, Malaysia. A face-to-face semi-structured interview was used to elicit individuals' use of medicinal plants for treatment of diseases and health maintenance. Prior approval for the study was obtained from the Research Ethics Committee of Universiti Teknologi MARA (REC/09/2020[MR/270]). In this study, "medicinal plants" encompass various plant components such as leaves, roots, bark, and other parts, which are utilized for disease treatment or health

maintenance [10].

Study participants

The study participants were adult indigenous individuals (age ≥ 18 years) from Bengoi village in Kuala Sat, Taman Negara, Pahang, who were proficient in conversational Malay, and had used medicinal plants for treatment of diseases and/or maintenance of health. Those who declined to participate or did not comprehend the Malay language were excluded from the study.

Study tool

For the semi-structured interviews, an interview guide was developed by the authors to gain insights into the utilization of medicinal plants for the treatment of diseases and health maintenance among the Orang Asli community (Table I). To ensure its relevance and clarity, the face validity of the guide was examined by four social pharmacy experts. Their feedback and comments were used to refine the questions, thereby enhancing the overall clarity and quality of the interview guide.

Table I: Semi-structured interview guide questions

Questions
1. Could you share any knowledge you have about medicinal plants, especially those passed down from your elders?
2. Are there specific plants you are familiar with, and how have they been traditionally used for health and well-being?
3. Can you tell me about the methods through which knowledge about medicinal plants is transmitted within the community?
4. How do you perceive the interest and receptiveness of younger individuals in the community towards traditional medicinal practices?
5. From your perspective, do you think there are any barriers or challenges in passing down traditional medicinal plant knowledge to the younger generation?
6. Have you personally used medicinal plants for any health conditions, and if so, could you share your experiences?
7. Do you see any changes in the use of medicinal plants over time, and what factors do you think contribute to these changes?
8. How accessible are medicinal plants in your local environment, and have you faced any challenges in obtaining them?
9. In your opinion, how has the availability of modern medicine impacted the utilization of traditional medicinal plants?
10. What are your perceptions regarding the efficacy and safety of medicinal plants compared to modern medical practices?
11. Are there specific factors influencing your preference for traditional or modern healthcare in certain situations?
12. Is there anything else you would like to share about your experiences or views on medicinal plants?

Data collection

Firstly, the researcher met with the leader of the village to explain the research aims and method of data collection. The leader then assisted in identifying several participants based on the study eligibility criteria. Subsequently, through purposive sampling method [11], the researchers approached potential participants, provided them with an explanation of the study and invited them to take part in the study.

Those who expressed willingness to participate completed a written consent form. The interviews were conducted in Malay by MSAW or AAA, using

the previously described interview guide. Using the snowball sampling technique, the researchers identified additional participants by requesting the interviewed participants to refer them to other individuals who met the study eligibility criteria.

Both researchers underwent training to ensure consistency in the flow and technique of the interviews, thereby reducing interviewer bias. As all participants were fluent in conversational Malay, the use of an interpreter was deemed unnecessary. Probing questions were employed to clarify the meaning of the participants' responses. Each interview was audio-recorded, and comprehensive field notes were taken. On average, an interview session lasted approximately 40 minutes. Upon completion of the interviews, all participants received a debriefing. There were no repeat interviews.

Data analysis

The audio files were assigned unique identification codes to protect the confidentiality of the participants and were subsequently transcribed by a research assistant. The accuracy of the transcriptions was then verified by the primary author. A coding guide was developed to ensure consistent coding of the collected data, which was then coded in Microsoft Word and Excel by MSAW. Additionally, thematic content analysis using an inductive approach was utilized in the data analysis process. Data saturation was reached after analyzing the recording transcripts of the first eight participants. The following four transcripts did not yield any new codes or themes.

A peer audit, known as check coding, was implemented to enhance rigor by comparing the interpretations of the primary author with those of other researchers. The research team held multiple meetings to deliberate on data coding, categorization, and interpretations, thereby ensuring the credibility and confirmability of the findings. The quotes used to exemplify the identified themes were translated from Malay to English, with a focus on capturing the essence of the statements provided by the Orang Asli participants rather than providing a literal translation.

RESULTS

Participants' demographic

The study involved 12 Orang Asli individuals, with six participants below 40 years old (50%) (Table II). Their ages ranged from 18 to 60 years, with only two of the participants (16.7%) being female. The educational background of the participants varied, with eight had never attended school (66.7%), two having completed secondary school (16.7%), and another two having completed primary school (16.7%).

Table II: Characteristics of study informants

Informant code	Age	Gender	Highest education
Participant 1	34	Male	No formal education
Participant 2	18	Female	No formal education
Participant 3	50	Male	Secondary school
Participant 4	35	Male	No formal education
Participant 5	50	Female	No formal education
Participant 6	40	Male	Primary school
Participant 7	32	Male	Primary school
Participant 8	60	Male	No formal education
Participant 9	52	Male	No formal education
Participant 10	52	Male	Secondary school
Participant 11	35	Male	No formal education
Participant 12	37	Male	No formal education

Use of medicinal plants

In the study, all participants have utilized medicinal plants for treating diseases and/or promoting health. Various indications for the use of medicinal plants have been mentioned, including the treatment of chronic diseases such as asthma and diabetes. Additionally, some have reported using these plants to alleviate symptoms of pain, cough, skin diseases, and fatigue, while others have indicated their use for general health maintenance purposes. The participants mentioned:

"A lot of uses... Body pain, leg pain, tiredness... drink it and feel better. We took the plants from the jungle." – Participant 5, Female, 50 years old.

"There are many plants (for treatment purposes) ... For asthma, diabetes, joint pain. Also, to energize the body. The villagers take it regularly so that the body is not easy to get sick. Some plants can be used to treat skin diseases." – Participant 10, Male, 52 years old.

As mentioned by the following participant, the use of medicinal plants can be dependent on individual preferences and specific situations, such as favoring modern medicine for infections.

"We would assess the situation... if the use of plants does not lead to recovery, we would visit the clinic. However, if we observe improvement from the use of medicinal plants, we can have peace of mind. If they use it for maintaining health that's okay. For infections we go to the clinic... We see the doctors." – Participant 10, Male, 52 years old.

The difficulty to visit the doctors was a reason for the use of medicinal plants as mentioned by one participant:

"Difficult to go there (referring to the clinic). If I'm sick, for my wife to send me there, can be difficult. Much easier with medicinal plants." – Participant 6, Male, 40 years old.

The easy accessibility of medicinal plants in the area led some people to prefer using them. One participant mentioned:

"We can get it here. No need to go anywhere. If we need more, we can go into the jungle and get some more. They are easier to get." – Participant 6, Male, 40 years old.

Nevertheless, despite the traditional use of medicinal plants being widely acknowledged, it was noted that their use has become less common. Many have highlighted the challenges associated with obtaining these plants, citing the difficulty of accessing them in remote forested areas.

"We need the time... Far to get them, that's the problem." – Participant 1, Male, 34 years old.

"We need to get the medicinal plants from the mountains... Far... Sometimes take days to find them." – Participant 8, Male, 60 years old.

Additionally, many participants highlighted the convenience of obtaining medications from clinics compared to the effort involved in seeking out and preparing medicinal plants. This perception was noted even among individuals who held favorable beliefs about the benefits of medicinal plants.

"Medicines from doctors are much easier. Just follow the doctor's instruction, take two tablets. Take it in the evening. Easy." – Participant 4, Male, 35 years old.

"Usually when I'm sick, I will go to the clinic. It's much easier to go to the clinic. There is a clinic nearby. The medicinal plants are more difficult... Many things to do... Find it... Then need to boil it." – Participant 3, Male, 50 years old.

"Easier to get medicines from the clinic... Just go and asked for medicine. Easy. So, the use of medicinal plants is becoming less common." – Participant 7, Male, 32 years old.

Knowledge of medicinal plants

The knowledge of medicinal plants exhibits variation among individuals, with older individuals often possessing more knowledge in this area. This is often attributed to the passing down of traditional knowledge from their elders. The participants mentioned:

"I learnt it from the elders... they know about it and showed it to us. They know which can be eaten, whether they are safe and don't cause bad effect." – Participant 5, Female, 50 years old.

"The elders taught me. So, I know about the plants." – Participant 8, Male, 60 years old.

Conversely, younger individuals tend to have less knowledge of medicinal plants, with some unable to name common medicinal plants. Many attribute this lack of knowledge to the elders not passing down this traditional wisdom to them.

"Only some of them I know (referring to medicinal plants). The elders don't tell us much about them. That's why." – Participant 1, Male, 34 years old.

"I have limited knowledge. My knowledge is based on the teachings passed down by the elders. Sometimes I can recall the information, other times I cannot." – Participant 6, Male, 40 years old.

However, it was also noted that the younger generations exhibited less interest in learning about the traditional use of medicinal plants. One participant mentioned:

"They are not interested. They don't care... If they are interested, yes, I can show them. If they are not interested, it's difficult." – Participant 7, Male, 32 years old.

Interestingly, some individuals stated that they are aware of the dangers of combining the use of medicinal plants and modern medicines. One participant mentioned:

"Both methods are effective, but I don't combine them as it can lead to us being 'drunk' (referring to intoxication). If this happened, we need to seek the expertise of the Tok Batin (referring to the head of village), who can cast spells to help us. He is our hope in times of need." – Participant 5, Female, 50 years old.

Perceptions about medicinal plants

The perceptions about medicinal plants varied among the individuals interviewed in the study. Those who held positive perceptions towards medicinal plants mentioned that these plants are effective, with some expressing the view that these plants are better than modern medicine in terms of effectiveness.

"We drink it. It relieves pain..." – Participant 8, Male, 60 years old.

"Sometimes with doctor's medicine... the sickness doesn't go away. With the medicinal plants, they can recover." – Participant 6, Male, 40 years old.

"We use the roots... Sickness will go away." – Participant 9, Male, 52 years old.

"Some plants can be used to treat skin diseases. We crush the plants and put it on affected areas. After 2, 3, 4 days, you can recover." – Participant 10, Male, 52 years old.

Despite some individuals holding positive perceptions

about the effectiveness of medicinal plants, others expressed skepticism. The main concern voiced by these individuals revolved around the safety of the plants. For some, modern medicines are perceived as more effective. Some participants stated:

"I prefer medicines from the clinic. Because with medicinal plants, the sickness doesn't go away." – Participant 2, Female, 18 years old.

"We don't know the effects of these plants. Some can cause you to be intoxicated." – Participant 4, Male, 35 years old.

For some participants, it was noted that they feel the need to embrace modern medicine. An example of a relevant quote is as the following:

"We can't be left out. We need to have nurses, like those who administer vaccine. Certain things like COVID, we can't be sure with medicinal plants." – Participant 10, Male, 52 years old.

It was also noted that many individuals held balanced perceptions towards medicinal plants and modern medicines. Some individuals believed that both medicinal plants and modern medicines offer similar benefits.

"If we are not sure, we go to the doctor or the clinic. We can depend on them. However, in this jungle, if we know about the plants, they are actually the same. Same as the medicine from outside (referring to modern medicine)." – Participant 1, Male, 34 years old.

"Medicines from outside (referring to modern medicine), or the mountain medicines (referring to medicinal plants), I can use them all. If I don't have outside medicines, I use the mountain medicines." – Participant 5, Female, 50 years old.

DISCUSSION

The qualitative study provides insights into the knowledge, use, and perceptions of medicinal plants among a sample of Orang Asli from a Bateq tribe village located in Kuala Sat, Taman Negara National Park, Pahang, Malaysia. It was observed that older individuals, who received knowledge of medicinal plants from their elders, demonstrated more knowledge of traditional medicinal practices. This is consistent with findings from studies in other indigenous communities, where traditional knowledge is commonly passed down through generations [5, 12]. The role of elders as key repositories of traditional knowledge has been highlighted in various studies among indigenous populations globally [8, 12-14].

However, a noticeable knowledge gap among younger

individuals raises concerns about the potential risk to the continuity of this invaluable information. This phenomenon has been observed in other studies [8, 15]. The knowledge of medicinal plants may diminish or be lost if young people are not interested in learning about and utilizing them [16]. Strategies to bridge this knowledge gap and encourage the transfer of traditional wisdom to the younger generation should be considered to preserve the rich medicinal plant heritage. The potential loss of this knowledge could erode cultural practices rooted in the community's history. Furthermore, without traditional knowledge transmission, communities may miss out on the medicinal benefits of historically used plants. Our findings may also warrant the need of active documentation of medicinal plants utilized by the Orang Asli before the knowledge associated with it is lost [6, 8].

In this study, conflicting findings have emerged regarding the transmission of traditional medicinal plant knowledge between generations. Older individuals see the younger generation as uninterested, while the younger generation sees the older individuals as less proactive in sharing their knowledge. The differing perspectives between older and younger individuals may arise from a gap in perception and communication. This gap may be influenced by changes in lifestyle, priorities, and a shift in the younger generation's focus towards modern practices [17]. Moreover, it suggests that older individuals may not be effectively communicating the significance of traditional medicinal plants.

The study participants emphasized the accessibility of medicinal plants in their local environment, highlighting the ease of obtaining these plants from their vicinities. This finding is consistent with research in other indigenous communities, where the local environment plays a crucial role in shaping healthcare practices [5, 18]. The use of medicinal plants is often linked to their immediate availability and cultural significance.

The study revealed diverse applications of medicinal plants, encompassing the management of chronic diseases such as asthma and diabetes, as well as the promotion of health, corroborating with findings of other studies involving Orang Asli in Malaysia [5, 7, 8, 16, 19]. This finding may encourage further research to document and elucidate the efficacy of these medicinal plants in treating chronic illnesses and promoting health. Nonetheless, it also raises concerns regarding the potential over-reliance on traditional medicinal plants for chronic disease management, which could result in delayed access to proven medical treatments [10, 20, 21]. This in consequence can exacerbate health problems within the communities. Encouragingly, some participants demonstrated an awareness of the necessity to seek modern medical intervention, particularly in cases of infections or when traditional medicinal plants failed to yield positive outcomes.

Despite the many reported uses of traditional medicinal plant use among the participants, a decline in the use of medicinal plants is noted, attributed to the challenges of obtaining them in remote forested areas. The convenience of modern medicine, readily available in local clinics, has contributed to a shift away from traditional practices. This shift is further exacerbated by the perception that preparing and using medicinal plants is more cumbersome than obtaining medications from clinics. This changing trend aligns with observations in other indigenous communities facing acculturation and increased access to modern healthcare [8, 16].

In this study, the participants exhibit diverse perceptions regarding the efficacy and safety of medicinal plants. Positive perceptions emphasize the effectiveness of these plants, with some participants viewing them as better than modern medicine in certain cases. However, skepticism is evident among those who express concerns about the safety of medicinal plants, emphasizing a preference for the perceived safety and effectiveness of modern medicines. Understanding these perceptions is crucial for promoting the safe use of traditional medicine and fostering collaboration between traditional and modern healthcare systems [20, 22].

The implications of the study extend beyond understanding the utilization of medicinal plants within the study participants. It highlights the extensive array of traditional medicinal plants employed in managing chronic diseases and enhancing health, presenting opportunities for further scientific exploration. Furthermore, it highlights the need to conserve and transmit traditional knowledge, potentially through community-based educational initiatives. Moreover, the study advocates for healthcare providers to be vigilant of the common use of traditional medicinal plants in treating chronic diseases and promoting health, while acknowledging the diverse perceptions and preferences pertaining to medicinal plants and modern healthcare.

Limitations

The limitations of this study are acknowledged. Notably, this qualitative study only involved a small number of Orang Asli participants from a single village in Taman Negara National Park, Pahang. Consequently, the findings pertaining to the use, knowledge, and perceptions of medicinal plants cannot be generalized to other Orang Asli communities in Taman Negara National Park, or those living in other regions. Other Orang Asli communities may have distinct practices, knowledge, and perceptions regarding medicinal plants, thus underscoring the need for broader participant inclusion. Future studies could include a larger sample of Orang Asli individuals from various villages and regions to capture a more comprehensive and diverse range of perspectives. Furthermore, the gender distribution within the participant sample was imbalanced, potentially affecting the representation of gender-specific

influences on the use, knowledge, and perceptions of medicinal plants. Similarly, the underrepresentation of younger individuals, particularly those below 30 years old, may have limited the understanding of the topics comprehensively.

CONCLUSION

The qualitative study provides insights of traditional medicinal plant use, knowledge and perceptions among the Orang Asli community in Taman Negara, Pahang. It underscores the critical role of intergenerational knowledge transmission to ensure the preservation of traditional medicinal practices. Furthermore, the study highlights the diverse applications of medicinal plants in managing chronic diseases and promoting health, presenting opportunities for further scientific exploration. Additionally, healthcare providers need to be vigilant of the common use of traditional medicinal plants in treating chronic diseases and promoting health among the Orang Asli individuals, while acknowledging the diverse perceptions and preferences pertaining to medicinal plants and modern healthcare.

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