Penerbit Akademia Baru

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 2. Pages 136-145, 2016

Indigenous Knowledge of Medicinal Plants Used and its Implication towards Health-Seeking Behavior among the Melanau in Pulau Bruit, Sarawak, Malaysia

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Abstract – *This article presents findings of a survey and an in-depth interview conducted in Pulau Bruit as part of the research project entitled "Traditional health practices and its implication towards health-seeking behavior among the Melanau in Pulau Bruit: Documentation of local heritage". The aim of the study is to explore health-seeking behavior related to the use of medicinal plant among the Melanau of Pulau Bruit. The survey data and interview reveals factors such as suitability, accessibility, and effectiveness of treatment plays significant roles in determining the health-seeking behavior of the Melanau community of Pulau Bruit. Although the major trend has shown the use of modern and traditional healing practices was combined, a vast majority of the households used medicinal plants to treat minor ailments. The study also reveals that there was a limited transfer of medicinal plants knowledge between generations within the Melanau community of Pulau Bruit. Furthermor, the decline of medicinal plants knowledge for spiritual purposes suggests that it was affected by numbers of external factors such as religion, change of lifestyle and urbanization. A long history of medicinal plants use in traditional health practices also suggests that it may contain therapeutic effects that can be determined by pharmacological analysis.*

Keywords: indigenous knowledge, medicinal plants, traditional healing, indigenous knowledge documentation, health-seeking behaviour

1.0 INTRODUCTION

The Melanau community appreciation towards the values and cultural meaning pertaining to traditional healing practices has their roots in the community indigenous knowledge system. Indigenous knowledge systems represent society's accumulated knowledge and are passed on

Journal of Advanced Research in Social and Behavioural Sciences
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orally from generation to generation through socialization [1]. In order to maintain this knowledge system, it has to be practiced and traditional healing practices provide a vehicle for this to occur [17]. In this approach, knowledge related to medicinal plants indicates a great deal of interdependent between nature and indigenous traditions. With medicinal plants, we refer to plants that are used in treating and preventing specific ailments and diseases [18] whereas traditional healing is the application of knowledge, skills, and practices based on the experiences indigenous to a specific culture [19].

In many developing countries such as Malaysia, Africa, China and Indonesia the use of medicinal plants is still predominant and commonly practice to heal various ailments. According to World Health Organization estimate, approximately 80% indigenous populations in developing countries depend on traditional medicine for their primary health care by use of medicinal plants [3,20]. WHO has listed 20,000 medicinal plants used in different parts of the world and other estimates the number to range between 35,000 and 70,000 worldwide [1]. A comprehensive study of medicinal plants used by various ethnic groups in East Malaysia has recorded and compiled a total of 2,731 ethnobotanical specimens of medicinal plants [16, 21-23]. The Forest Department has been conducting surveys and gathering information on the use of plants for the medicinal purpose by the various communities in Sarawak [9,16]. In Sarawak there are about 1220 species of medicinal plants particularly were collected and used by the Chinese, Malay, Melanau, Bidayuh, Iban and Orang Ulu [16]. A number of studies show that a total of 213 species of medicinal plants are widely used by Melanau community, while a total of 216 species of plants have been used for traditional medicine among the Iban, Lun Bawang and Kedayan community [13]. Those researchers conducted an ethnobotanical survey collected the plants and categorized them by its local names, botanical names, locality, habitat, habit and usage of medicinal plants according to ethnic groups [8,10,16].

The survey is by no means comprehensive but some have presented an increasing degree of dependence on medicinal plants if the community's settlements are located far from urban areas. However, the impact of modernization and introduction to modern medicine and healthcare services have currently taken place even in the most remote rural region of Sarawak, and it has gradually replaced traditional healing practices and cultural belief systems of more than 30 indigenous groups in Sarawak including Melanau indigenous community with no exception. Traditionally, this knowledge was transmitted orally over countless generations and stood the risk of being lost if remain undocumented.

Few studies documented the importance of indigenous community's knowledge on their traditional healing practices and used of medicinal plants as a useful approach not only to conserve their cultural traditions and biodiversity but also for community healthcare and drug development in the present and future [14]. In addition, many researchers have addressed a concern about the loss of traditional knowledge as a result of changing lifestyles, changing priorities, the availability of modern amenities and diminishing dependence on natural resources among indigenous communities [11,15]. It is safe to assume that factor such as rural-urban migration poses challenges to the communities with close cultural links to their plants. In order to support conservation efforts, there is a need to find ways to ensure community's traditional knowledge will be protected and shared across the communities.

Studies also demonstrated that the Melanau traditional healing practices and its cultural meaning shaped the Melanau understanding of the cause and cure for certain illnesses [5,6]. The conception of the Melanau community traditional healing practices derived from their traditional knowledge systems which then characterized by the connection between spiritual

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and physical world. According to Beavitt [2], the Melanau believed that most illnesses were caused by a symbolic attack by an animal, a spirit or by another human being. He revealed that the dukun (shaman) used the medicinal plants as a means of curing or restoring the balance of the body. If the body too hot, herbs would be given to cool it and to heat it if thought to be too cold [2]. However, the Melanau traditional belief and their knowledge on healing practices have declined and greater numbers of cultural practices have been incorporated into Islam.

The indigenous community knowledge captured in this study place the importance of restoring Melanau traditional knowledge of healing practices and medicinal plants for the purpose of cultural conservation. It enables communities to reuse their traditional knowledge in a similar way scientific community organized their knowledge.

2.0 METHODOLOGY

2.1 Location and Area of Study

The study focused on various ethnic Melanau villages located in Bruit Island or commonly known as Pulau Bruit in Daro district. Pulau Bruit is the second largest island in Malaysia and part of the state of Sarawak. Pulau Bruit located between Kuala Paloh and Kuala Lassa and there are 12 villages (Kg. Saai, Kg. Kut, Kg. Bruit, Kg. Tekajong, Kg. Penipah, Kg. Salak Small, Kg. Betanak, Kg. Penibong, Kg. Penuai, Kg. Semop, Kg. Sedi and Kg. Sebako) with a population of nearly 30,000 people lived in the area. Most of the population in Pulau Bruit is estimated to live below the poverty line. A total of 43,700 hectares (107.985 acres) of land located in the area and majority of villagers work as fisherman and farmers. The majority of population consists of Melanau Muslim and the major transportation that connects Pulau Bruit to the main area in Sibu district is by ferry and boat.There are three villages involved include Kg. Saai, Kg. Kut and Kg. Semop for this study.

2.2 Sampling and Sample Size

2.2.1 Survey

A survey questionnaire comprises of questions on the traditional healing practices and types of medicinal plant used were administered as a guide during the interview which was carried out in three selected villages namely Kampung Kut, Kampung Saai and Kampung Semop. A total of 81 respondents from the three villages were selected as adjusted to the approximate total number of population in each village. The respondents were selected through simple random sampling and interviewed.

2.2.2 In-depth interviews

Three in-depth interviews to obtain a deeper insight into medicinal plant use in each village were conducted with key informants; a traditional healer (*bidan*), a local traditional herbalist and medicinal plants cultivators and user. The themes of interviews varied according to the informant. The key informants were identified from the random survey conducted during data collection.

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3.0 RESULTS AND DISCUSSION

3.1 Demographic Characteristic of Respondents

A total of 81 respondents from three villages namely Kg Kut (18.5%), Kg Semop (58%) and Kg Saai (23.5%) were studied. Out of 81 participants, 56 were females (69.1%) and 25 were males (25.9%). With aged ranged from 18 to 84 years old (see Table no.1). Most of the respondent attended their formal education and (66.7%) were a small business operator and pensioner while 22.2% were currently unemployed (see Table no 1).

Table 1: Demographic profile of the Melanau community, Pulau Bruit

Profile category		Percentage (%)
Respondent of selected villages	Kampung Kut	18.5%
	Kampung Semop	58%
	Kampung Saai	23.5%
Gender	Male	25.9%
	Female	69.1%
	Mean (SD±.)	
Age range	16-40	12.3%
	41-60	50.6%
	61-84	37%
Education level	No formal education	25.9%
	Primary school	46.9%
	Secondary school	25.9%
	Tertiary	1.3%
Occupation	Government servant	6.2%
	Private sector	2.5%
	Small business operator and pensioner	66.7%
	Unemployed	22.2%

3.2 The State of Knowledge on Traditional Medicines and its use among the Melanau in Pulau Bruit

3.2.1 Physical and spiritual uses of medicinal plants in Pulau Bruit

A significant number of respondents are using the combination of modern medicine and traditional medicine to treat ailments indicates the major use of traditional medicine is complementary to the use of conventional medicines. Consequently, 80.2% respondents (Table 2) reported the use of the traditional medicine within their household. The use of traditional medicine comprises plant-based medicines that can be found within a short distance. And for many generations, the Melanau in all three villagers mostly owned small plots of land located near family residence which has been used as small gardens that contain a whole range of plants and become an important resource for foods and medicine. There is always ready supply as medicinal plants are commonly found in the vicinity of their homes. Bioactive compounds derived from currently used herbal medicines are more likely to have minimal toxicity, and a long history of clinical use suggests that herbal medicine may be clinically effective.

From the survey results, the primary use of medicinal plants by each respondent is for the treatment of physical illness (85.2%, Table 3). Some of the medicinal plants which have been

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identified to treat physical illness are Sambung Nyawa, Benuak, Geligir, Kerikat, Nyaraya, Gading Gajah, Labat, Lapuin and Tepus. Tepus, for instance, have been widely used to treat diarrhea, conjunctivitis and reduce body heat during confinement. There are few types of traditional medicines which are prepared by a skilled traditional herbalist using a wide range of ingredients and special chants (usually some verses from Al-Quran, holy book for Muslims) were uttered during the making of medicines. However, such method of preparation for local traditional medicines does not necessarily mean that it was made to heal spiritual illness. In fact, most are used to treat physical illness such as toothache, menopausal symptoms, and high blood pressure.

The survey also indicates 21% (Table 3) is used to cure spiritual illness, 4.9% (Table 3) is used for protection from sihir (witchcraft) and the same percentage is used for treating illness caused by 'black magic' or witchcrafts. This figure shows that medicinal plants have several uses among the Melanau although only a slight number of respondents were able to relate the use of medicinal plants to heal spirit cause of sickness. The Melanau worldview of spiritual world can be found in many kinds of literature and one of them have recorded 140 types of spirit causing illness in which medicinal plants also plays an integral part in the process of healing. For instance, in Melanau healing ritual which involves transferring the spirit that believed to have cause illness to the Bilum (carved sago pith), some words were uttered as a mixture of saliva dyed red by chewing sireh, betel leaf lime and pinang nut (areca catechu) was spat at the Bilum. These words, spoken in the Melanau language, indicate that the spirit represented by the image has made the sickness and should suck it out, and are accompanied by a threat from the carer to crush the spirit if it does not obey and inhabit the image [2].

Table 2: The uses of medicinal plants of the Melanau community in Pulau Bruit

	Category	Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	65	80.2	80.2	80.2
	No	16	19.8	19.8	100.0
	Total	81	100.0	100.0	

Table 3: Distribution on purpose of using medicinal plants (N=81)

Purpose of using medicinal plants	Respondents (*n*=81)
To cure physical illness	85.2%
To cure spiritual illness	21%
Protection from witchcraft/'black magic'	4.9%
To cure illness caused by 'black magic'	4.9%
Other use	3.7%

3.2.2 Traditional medicinal plants used by villagers in Pulau Bruit

A total of 10 traditional medicinal plants which are frequently used locally have been identified in the study area. All of 10 species were identified by their scientific names and their medicinal uses recorded based on precise applications noted by the local informants. Approximately 1 kg per plant samples was collected for genus and species identification. Genus and species were identified according to herbarium unit of Sarawak Forestry Department. However, the uses of medicinal plants are not divided into use categories according to the cause of illness because the division of the plant usages into spiritual and physical cures has no clear boundaries.

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Table 4: Six Traditional medicinal plants used by villagers

Scientific names	Local names*	Part of plants collected	Indications**
Macaranga Pruinosa	Benuak	Leaf	Anti-hypertensive
Erigeron Canadensis	Nyaraya	Leaf	To treat wound
Acanthus Ebracteatus	Geligir	Leaf	Anti-hypertensive
Lygodium Microphyllum	Kerikat	Leaf	Reduce temperature during fever (antipyretic),anti-curse
Clinacanthus Nutans	Gading Gajah	Leaf	Treatment for shingles and cancer such as prostate cancer and breast cancer, high blood, treat kidney problem and diabetes
Derris Trifoliata	Kalipas	Leaf	Anti-diarrhea and antipyretic
Gynura Procumbens	Sambung Nyawa	Leaf	To reduce high blood pressure (anti-hypersensitive)
Etlingera Tittoratis	Tepus	Rhizome	to treat diarrhea, conjunctivitis and reduce body heat during confinement
Poikilospermum Cordifolium	Labat	Leaf	Anti-inflammation
Boesenbergia Pulchella	Lapuin	Leaf	Used for healing process during confinement

*Local names as reported by informant

** Information provided by informant

3.2.3 Indigenous knowledge on traditional medicinal plants

Knowledge on the use of medicinal plants for the purpose of spiritual healing ritual is gradually loss. According to the local bidan (traditional healer), Puan Manasiah binti Budin (76 years old) from Kg Semop who have been practicing as bidan since she was 38 years old, the traditional knowledge on medicinal plants especially for a spiritual purpose is less known because the Melanau spiritual healing tradition are not commonly practiced anymore. Consequently, such tradition carries more cultural meaning rather than practical functions. And factors such as urbanization and the advent of modern health care services have altered the way younger generations perceived their own cultural traditions. The majority of the Melanau have embraced Islam and abandoned their old tradition which revolves around the beliefs of spiritual being and mystical being. Thus, practicing the traditional healing practice is deemed as a deliberate attempt to divert from the true teaching of Islam that prohibits the paganistic and superstitious beliefs.

According to the local Melanau herbalist, Puan Rosnawati (42 years old) the knowledge of preparing medicinal herbs is passed down to her by mother-in-law and she obtained most of the ingredients from surrounding areas such as fields and forest. She reveals that herbal medicines are still considered as important home remedies especially for women's health care such as post-natal woes recovery, menstrual pain, to reduce vaginal discharge, pre, and post-menopausal treatment and to increase breast milk production during confinement period. The beneficial use of traditional medicine is constantly shared and passed down from generations to generations among the Melanau. Thus, she evidently noted that the demand for herbal medicines didn't show any sign of slowing down although in recent times very often used in combination with modern medicines. Women especially have always been her loyal customer and some have helped her to expand her market outside of the village.

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3.3 Health-Seeking Behavior of the Melanau Community in Kg Kut, Kg Saai and Kg Semop

Out of 81 respondents, 60.49% used a combination of modern and traditional treatment as their health practices (Fig. 1). This trend can be explained by the growing dependency towards modern medicine to combat serious illnesses while the use of traditional medicine is mainly to treat minor ailments. From descriptive statistic (Table 5), the results indicate the majority of the respondents (63%) found that the suitability of treatments influences their health-seeking behavior. Suitability of treatments refers to the suitable prescription for specific type of illness. For instance, minor wounds or small cut is normally treated with a light application of *daging mukmin* (local remedy) on skin. Whereas severe or deep cut is treated by a doctor as it might need a surgical procedure to prevent serious infection. Most respondents also indicate (60.5%) that easy accessibility influences their health-seeking behavior. Accessibility refers to the distance which also involves time and expenses for the villagers to reach the nearest hospital or clinics for treatment. They will prefer to seek treatments from local bidan or herbalist and find cures from plants that can be easily obtained from forest or home gardens than to travel a great distance to seek for medical treatment. Results also showed that respondent's health-seeking behavior primarily influenced by its effectiveness (59.3%). Effectiveness refers to the extent of which specific treatments able to relieve or cure certain ailments. And followed by that, a substantial number (42%) indicates that their personal experience also plays important role in determining their health-seeking behavior. In the case of traditional healing practices, users usually share their experience with family members, neighbors, and friends on the usefulness and effectiveness of the treatment. And their own experiences relating to the use of certain healing practice also provide recognition on the possible benefits that they gain from using it.

Table 5: Factors influencing health-seeking behavior by informants (N=81)

Category	Sum	N	Percentage %
Testimony from other users	1	81	1.2%
Personal experience	34	81	42%
Effectiveness of treatment	48	81	59.3%
Cost effectiveness	8	81	9.9%
Accessibility	49	81	60.5%
Suitable to treat ailments	51	81	63%

4.0 CONCLUSION

In the last decades, most of the study on indigenous community was aimed to document and preserve an accumulation of indigenous knowledge developed over generations, fearing that their knowledge and heritage will continue to disappear without record. This documentation effort often seeks to integrate a scientific understanding of indigenous world view which extends to a larger scholarly contribution and field of research. Having the indigenous community knowledge documented in the language from their worldview provides the opportunity for communities to reuse their knowledge in a scientific framework.

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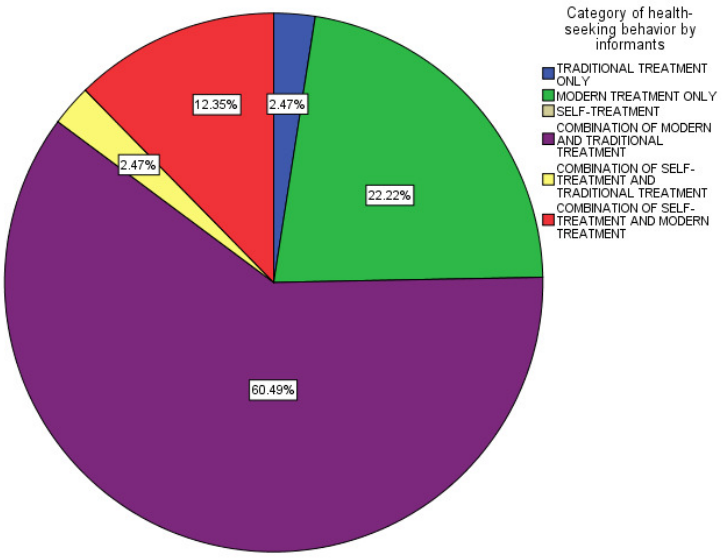

Figure 1: Category of Health-Seeking Behaviour of respondents (*N*=81)

The communal structure of what used to be a close-knit society is gradually breaking down due to generational gap and change of lifestyle. These pose great challenges in maintaining and transfer of knowledge mainly because conservation initiative is not a one man show but requires collective efforts. In the face of changes, the Melanau traditional knowledge on medicinal plants is still striving to remain as a local tradition that reflects the unique culture and their world view.

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