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ETHNOBOTANY OF HERBAL MEDICINE IN BALINESE MANUSCRIPTS AS AN ALTERNATIVE TREATMENT FOR THE ELDERLY

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ABSTRACT

This research attempts to uncover herbal concoctions in the usada manuscripts that can be used for elderly health care, starting from the types of herbal concoctions, types of plants or herbs used, how to mix them, how to use them, their efficacy, to the ritual procedures for their treatment. The manuscripts were collected directly from several libraries in Bali. Data collection used the documentation method. The provision of texts used the transcription and transliteration methods. Hermeneutic theory was used at the data analysis stage. The presentation of the results of the data analysis used formal and informal methods. The results of the research showed that four lontar usada were found that contained knowledge about herbal medicine for the elderly, namely Durgakala, Usada Tuju, Usada Sari, Usada Tuwa, and Usada Tiwang. Common diseases suffered by the elderly contained in the four manuscripts consist of (1) treatment of diseases of the face, head, hands, feet, and skin such as itching and swelling, aching in the groin, aching bones, unbearable headaches, pain all over the body and radiating to the feet, numb hands and feet, back pain, and stabbing pain in the back, (2) treatment of diseases of the nervous system, brain, bones, mouth, and stomach that are often suffered by the elderly, such as impotence, stomach cramps, bloody and purulent stools, pain between the stomach and genitals, bloating in the stomach, dysentery, and pain in the navel, and (3) diseases that occur due to the process of decreasing the function of the five senses, such as loose teeth and blurred vision. The medicinal ingredients used to treat these diseases come from plants and local natural materials that are easy to obtain and inexpensive because the ingredients can easily be found in the surrounding nature, the technique for mixing the ingredients is very simple, and the technique for curing the disease is not too complicated. The ritual of healing is based on the context of Balinese Hindu culture. The form of herbal concoction presented in the manuscript is in the form of boreh, jamu, simbul, lulur/param, bedak (powder), and food.

KEYWORDS: Herbal, Traditional Medicine, Usada, Elderly.

1. INTRODUCTION

Aging is not a disease, but rather a process of decreasing the body's resistance to stimuli from within or outside the body. Everyone will definitely experience the aging process because aging is a biological process that cannot be avoided and occurs naturally. The World Health Organization (WHO) emphasizes that aging occurs due to the cumulative impact of various molecular and cellular damage over time, so that it causes a gradual decline in physical and mental capacity and causes an increased risk of disease and death. Furthermore, WHO explains that the population of a country with a high proportion of elderly people or what is known as population aging is experiencing changes that initially occurred in high-income countries, now shifting to low- to middle-income countries that are experiencing greater changes. In 2050, it is projected that two-thirds of the world's population over the age of 60 will live in low- and middle-income countries (Rudnicka *et al.*, 2020);

Indonesia as a developing country in 2010 the number of elderly people was 18.1 million people (7.6% of the total population) and in 2012 it increased to 18.55 million people or 7.78% of the total population (Central Bureau of Statistics of the Republic of Indonesia, 2017). In fact, in 2013 the United Nations recorded the number of elderly people in Indonesia ranked 108th out of all countries in the world (Sutari, 2017). In 2014, the number of elderly people in Indonesia increased to 18,781 people. The increase in the number of elderly people occurred in 2017, which was 23.66 million people or 9.03%. These data show that there is an increase in the number of elderly people from year to year in Indonesia.

The increase in the number of elderly people also occurred in Bali Province. Bali Province is ranked fifth in the provinces with the largest elderly population in Indonesia after DI Yogyakarta Province, Central Java, East Java, and West Sulawesi. Since 1980, the percentage of elderly people in Bali has increased rapidly in each decade. According to data from the 2010 Bali Province Central Statistics Agency population census which is conducted every ten years, it shows that in 1980 the percentage of elderly people in Bali was 7.69 percent. The increase occurred in 1990 to 8.22 percent and reached 8.77 percent in 2000. In the last decade, BPS recorded an increase in the percentage of elderly people by 2.70 percentage points from 9.77 percent in 2010 and is estimated to be 12.47 percent in 2020 (Central Statistics Agency, 2010). Based on the results of the census, it shows that in 2020 Bali can be said to have

entered an old population structure because the percentage of elderly people in Bali has exceeded 10 percent.

The increase in the number of elderly people in Indonesia from year to year, as is the case in Bali Province. As is common in developing countries, the health status of the elderly in Indonesia is reported to be low. Based on the results of a research conducted by Trihandini (2007), it was found that around 17% of the elderly stated that they had been sick a month ago, around 9% had been hospitalized a year ago and around 74% of the elderly suffered from various chronic diseases. The problem that has not been solved in Indonesia is that every year the number of elderly people in Indonesia increases, but the priority of elderly health has not been a priority. So far, the main priority has been on health services for mothers, babies, children, and adolescents. Of course, this condition needs serious attention from all parties to provide health facilities and services to the elderly and the need is increasingly urgent.

In this regard, efforts need to be made to maintain the health of the elderly so that they can continue to live healthy, quality, and productive lives. Health efforts for the elderly include health care and healing of diseases suffered by the elderly. Health care for the elderly can be done by maintaining a clean lifestyle, consuming balanced nutrition, doing physical activities regularly, providing comfort in social life, opening up work opportunities, and maintaining an environment that is friendly to the elderly. In addition, treatment or prevention of disease is also very important for the elderly. People who have entered old age have a higher risk of certain diseases such as heart disease, diabetes, and stroke. Not only physical health, also mental health needs to be considered in the elderly. Prioritizing a healthy lifestyle, disease prevention, and proper care can help maintain the health of the elderly.

The low level of health of the elderly in Indonesia has not received attention until now, especially in terms of providing health facilities and health services for the elderly. In addition, the development of the health world in Indonesia which continues to experience significant increases, has also had an impact on the increasing cost of care and treatment of diseases in the elderly. The high cost of care and treatment of diseases is a fairly heavy burden borne by the elderly, especially the elderly from lower-middle-class families. This is what causes them to choose to get alternative or traditional health services. Providing traditional treatment is seen as having fewer negative side effects compared to modern treatment methods (Kartika *et al.*, 2017)

The way to care for health and cure diseases suffered by the elderly is contained in various usada manuscripts. Based on the results of reading various Balinese usada manuscripts, it turns out that there are several usada manuscripts that contain ways to care for health and how to cure diseases in the elderly, both the treatment or healing of physical and mental diseases in the elderly. Balinese usada containing ways to care for health and cure diseases are found in the lontar Usada Durgakala, Usada Tuju, Usada Sari, Usada Tuwa, and Usada Tiwang. In this regard, this research seeks to uncover the types of herbal concoctions and techniques for treating diseases suffered by the elderly in the four manuscripts.

The problems solved in this research are related to the types of herbal concoctions for the treatment of elderly diseases as stated in the Usada Durgakala, Usada Tuju, Usada Sari, Usada Tuwa, and Usada Tiwang manuscripts; the types of plants used and how to mix the ingredients into herbal concoctions; the efficacy and techniques for using the herbal concoctions for the treatment of elderly diseases; and the ritual procedures carried out in the treatment of a disease. The purpose of this research is to describe in full the health care and treatment of elderly diseases using herbal ingredients as stated in the four usada manuscripts, starting from the description of the types of herbal concoctions; the ingredients or plants used; how to process the ingredients; the efficacy contained in the herbal concoctions; health care or treatment techniques; and the procedures for the treatment ritual. Thus, the results of this research are expected to increase knowledge and inspire the wider community in health care and treatment of the elderly based on traditions inherited from ancestors, it is hoped that there will be new findings in the field of pharmacology and elderly health, and through this activity it is expected to encourage the community to preserve the environment, especially medicinal plants in the surrounding nature.

Research on herbal concoctions for the care and treatment of diseases in the Balinese usada manuscript has been carried out by many researchers. Ekayanti (2022) in her article entitled "Utilization of Herbal Plants in the Treatment of Pain Based on Balinese Local Wisdom Usada Tiwang (in Proceedings of the National Pharmacy Workshop and Seminar. Vol. 1. 2022) describes herbal medicine for pain based on Usada Tiwang. Yuda et al. (2023) in his article entitled "Irritation Test and Hair Growth Activity Hair Tonic from Bali Usada Plants in Mice" (in Scientific Journal of Medicine 9.1 (2023): 29-35) describes the herbal plants contained in the usada for

hair growth and fertility. Larashati & Anak Agung Gede Rai Yadnya Putra, (2023) in the article "Review of the Analgesic Activity of Kenanga (*Cananga Odorata*) and Temulak (*Curcuma Xanthorrhiza*) in Usada Tenung Tanyalara" in Proceedings of the National Pharmacy Workshop and Seminar. Vol. 1. 2022 commenting on the contents of Usada Tenung Tanyalara related to the properties of Kenanga plants (*Cananga odorata*) and Temulak (*curcuma xanthorrhiza*) which has pharmacological effects and toxicity of selected plants with empirical effects found in Usada Tenung Tanyalara as an analgesic and the safety limits of the dose in its use through preclinical and clinical studies.

Arsana et al. (2020) in his article entitled "Utilization of Dapdap and Canging (*Erythrina*) Plants in Usada Treatment" in Journal of Tropical Ethnobiology (2021): 144-152 describes the benefits of dapdap and Canging (*Erythrina*) plants for treatment. Putriet al. (2023) in an article entitled "Description of the Behavior of Utilizing Loloh Cemcem as Herbal Medicine in Penglipuran Village" in Journal Scientific of Mandalika (JSM) e-ISSN 2745-5955 | p-ISSN 2809-05434.8 (2023): 113-120 explains the benefits of cemcem herbal medicine as a herbal medicine. Seriasih (2020) in his article Review of Neem Leaves (*Intaran*) from the Side of Balinese Mythology and Usada in IKA Journal Vol. 18, No. 1, 2020 states that the benefits of neem or intaran leaves (*Azadirachta indica*) in the world of medicine is very much, namely efficacious as antibacterial, antiviral, antidiuretic, antifungal, and antisedative. In addition, intaran leaves can also be used for various diseases such as; allergies, tonsils, asthma, arthritis, hemorrhoids, cough medicine, diabetes ulcers, diarrhea, and others.

Cahyaningrum and Ardhana (2022) in their writing Traditional Treatment of Tuju Disease (Rheumatism) in Lontar Usada Based on Bali Local Wisdom in Journal of Economy Culture and Society states that rheumatism has three treatment techniques, massage or massage, internal energy, and giving herbal medicine, while the herbal plant used to cure rheumatism is tangerine (noble citrus), awar-awar (*ficus septica*), jeruju or daruju (*acanthus icifolius L.*), ginger (*zingiber officinale roxb*), encok leaves (*plumbago zeylanica L.*), triketuka (garlic, jangu, mesui), and sindrong jangkep (spices). The article entitled Utilization of Cough Treatment Based on Balinese Local Wisdom in Usada Tenung Tanyalara written by Prasetya (2021) in Jurnal Bioshell, Vol.10, No. 2 stated that the treatment for coughs in Usada Tenung Tanyalara is with raw chicken egg white, green skin coconut milk and

white ginger.

From the search for these research, in general, it reveals general healing of diseases based on usada, but has not yet touched on herbal concoctions that are efficacious for health care and treatment of diseases in the elderly. This research focuses on revealing health care and healing of diseases commonly suffered by the elderly contained in Balinese usada, such as diseases of the bones, skin, head, mouth, stomach, nerves, and diseases due to weakened function of the five senses.

The theories used in the data processing and data analysis stages are philological theory and hermeneutic theory. Philological theory is used to determine the text that will be used as the basis for analysis. Philology is a science that studies the development of a nation's culture which includes language, art, and others, through the results of human culture in the past in the form of ancient manuscripts which are then studied, reviewed, understood, and interpreted. The stages of the philological method include collecting manuscripts, transcription, revision and reconstruction, as well as interpretation and analysis. At the stage of collecting manuscripts, all manuscripts relevant to the text being studied are collected, including those published in book form. The manuscripts are then transcribed into a form that is easier to read by converting from ancient letters to modern letters and adding punctuation if necessary. After being transcribed, the manuscripts are compared to identify differences, errors, and variations in order to determine the version that is closest to the original text. Revision and reconstruction of the text is a further step after transcription involving the selection of the most likely correct reading or perhaps creating a new text by combining elements from various manuscripts. The next step is to interpret and analyze the text with the aim of revealing the meaning of the text, the historical context, and the culture behind it (Fathurhman, 2015; D.C. Greetham, 1994; Tanselle, 1989; Reynolds & Wilson, 1991).

Hermeneutic theory is used in the stages of interpretation and analysis of texts in order to reveal the meaning of the text, including revealing the historical and socio-cultural contexts that underlie the text, and how the text can be interpreted by readers from different eras. Ricoeur, a French philosopher, developed a hermeneutic theory that combines a phenomenological approach with text analysis, stating that hermeneutics is not just a method for interpreting texts, but also a method for understanding oneself and the world through the process of interpretation. He emphasized the

importance of "hermeneutical distance" (hermeneutical distance) between the text and the reader, which allows the reader to explore the meaning of the text critically and reflectively. This theory also introduces the concept of "text world" (the world of the text), namely the text opens up the possibility of a new understanding of reality. Through interpretation, the reader not only understands the text, but also experiences self-transformation, because the text becomes a mirror to reflect and expand human understanding of existence and the meaning of life (Thompson, N.D.).

The implementation of hermeneutics in manuscript studies can be done through the steps of analyzing the historical and socio-cultural context, identifying genres and styles, applying the understanding of the hermeneutical circle, applying the concept of fusion of expectations, conducting critical reflection, and interpreting and synthesizing. This means that after the manuscript is transcribed and reconstructed, understanding the historical and socio-cultural context is very important, including understanding the background, purpose of writing, and the intended audience. Furthermore, determining the genre and writing style of the text to understand the conventions and norms that may influence the interpretation of the text. The application of the hermeneutical circle to reveal the relationship between parts of the text and the whole text which involves rereading and reflecting on the text. The concept of fusion of expectations is applied to understand the horizon of understanding of the interpreter and the horizon of the text which also involves reflection on the historical and socio-cultural context of the interpreter that will influence the interpretation of the text. Critical reflection is used to reveal ideological and historical forces, as well as socio-culture that may be hidden in the text. The final step is interpretation and synthesis, namely synthesizing all analysis and reflection to produce a comprehensive interpretation of the text (Boulton, 2024; Herwinarko, 2022; (Edi Susanto, 2016).

2. RESEARCH METHOD

This research was conducted for one year from January to December 2024. Data search in the form of usada manuscripts was conducted in three locations, namely the FIB Lontar Library, Udayana University, the Lontar Library of the Bali Provincial Cultural Service, and the Lontar Library of the Bali Provincial Language Center, Ministry of Education, Culture, Research and Technology which was conducted in March 2024.

Methods and techniques are adjusted to the

research stages. At the data collection stage, a survey method with text documentation techniques is used. Document data in the form of usada manuscripts are collected directly from several libraries or institutions that handle Balinese manuscripts, both manuscripts in the form of lontar and manuscripts in the form of manuscripts that have been transcribed and transliterated. From several usada manuscripts that were successfully collected, manuscripts were selected that contained care and treatment of diseases in the elderly. The method of selecting manuscripts used the text interpretation method through philological work steps.

The methods used in data analysis are text transliteration method and content analysis method. The initial stage is carried out by transliterating the two manuscripts. The results of the transliteration are the basis for interpreting the meaning. The data analysis process is carried out by carefully reading the contents of the text, identifying the types of diseases commonly suffered by the elderly contained in the text, identifying herbal and non-herbal ingredients used for health care and healing diseases, revealing how to process herbal and non-herbal ingredients for health care and healing diseases, finding care and treatment techniques, and finding ritual procedures carried out in care and treatment. Furthermore, at the presentation stage, the presentation of the results of the data analysis uses formal and informal methods. The results of the data analysis are presented informally, namely descriptive presentation through words, sentences, and other forms of narrative. The formal method is used to present the results of the research data

analysis using signs, symbols, and maps. The application of the formal method is for the efficiency and systematicity of the presentation, while the application of the informal method is to facilitate and clarify understanding.

3. RESULT

Lontar usada containing methods of health care and treatment of elderly diseases are found in the lontar Usada Durgakala, Usada Tuju, Usada Tuwa, Usada Sari, and Usada Tiwang. The following presents the results of reading the four lontar leaves.

3.1. Lontar Usada Durgakala

Lontar Durgakala is one of the lontars owned by the Bali Cultural Documentation Center which contains information about the types of treatment in relation to elderly diseases and various types of diseases suffered by children, adolescents, and adults. This lontar is identified as having a length of 51 cm, a width of 3.5 cm, with a total of 29 sheets. The existence of this lontar is in a very well-maintained condition with kropak number: III/3/U. In the notes in the lontar, it is stated that the contents of this lontar were copied on May 11, 1995 by Erawati. Lontar Durgakala is written back and forth with four lines of sentences using the Balinese Kawi language. Several quotes written in the lontar are specifically regarding health care or treatment of elderly diseases, such as back pain, cough, rheumatism, and impotence. Treatment of elderly diseases in the lontar is presented in the following table.

Table 1:

Script	Types of Herbal Medicines	Illness	Ingredients/Ingredients	Treatment Techniques
Lontar Durga Kala	Boreh	Bancang pain/lower back pain	Kusambi tree bark (<i>scheichera trijuga</i> W), lime (<i>citrus hystrix</i>), and kencur (<i>kaempferia galanga</i>),	Stretched on the waist
	Jamu and boreh	Kokoan (cough)	Fearful (<i>curcuma</i>), galangal (<i>galanga alpinia</i>), candlenut (<i>aleurites moluccanus</i>), meat rong, taap made into jamu; 2. two sweet oranges (<i>citrus sinensis</i>), rong meat (spices, (made into boreh) drugs (boiled until cooked) then smeared (on the esophagus)	Mixture 1 is drunk and mixture 2 is rubbed on the outside of the throat.
	Jamu	Tuju (rheumatism)	Rinse the arak, berem, lime juice, oil and spices until soft, then boil them.	Drink. During the preparation, offerings are provided with holy water, fragrant burat, betel fruit, sasantun complete with money (kepeng).
		Impotence	Gempong dapdap wong tree (thorny dapdap tree) <i>erythrina fusca</i> '), 3, more, teter tree roots ' <i>solanum verbascifolium</i> (tree for rheumatism medicine), lajering empelan (plant that grows in dams), the creek (scraping) punching tool, sambu powder, pepper (<i>piper ningrum</i>), pee (rinse) all, wayang oil	Rub it on the genitals. The mantra is Om Sang Hyang Brahma woh inghulun purus don agung akas adawa, langgeng angmet, 3, lepakna ring pasta (hlm. 23b)

3.2. Lontar Usada Tuwa

The Lontar Usada Tuwa is also one of the palm

leaf collections of the Bali Cultural Documentation Center. This palm leaf is 50 cm long and 3.1 cm wide. The cover is made of black bamboo. The title of the manuscript is written on the cover, along with information about the ownership of the manuscript, namely Gedong Kirtya Singaraja. In addition, on the right side is written information stating that this manuscript is a derivative of the Usada Tuwa palm

leaf belonging to Anak Agung Alit Tjoto from Puri Klungkung. The language used is Kawi-Balinese. In Usada Tuwa there are treatments for elderly diseases, such as loose teeth, blurred or blurred vision, coughs, stiff stomach, dysentery, gaping wounds, and itching all over the body. The types of herbal concoctions used to treat these diseases are presented in the following table.

Table 2:

Script	Types of Herbal Medicines	Illness	Ingredients/Ingredients	Treatment Techniques
Lontar Usada Tuwa	Boreh	Nanah getih (bloody and purulent boils)	Galangal (<i>galanga alpinia</i>), turmeric powder (<i>long turmeric</i>), ginger (<i>zingiberzerumbet</i>), kencur (<i>kaempferia galanga</i>), Island chapter (<i>alstonian scholar</i>), flower plastic bag, chapter workshop (<i>works</i>), bulge, clothesline, raging.	Spread (rubbed) on the painful part
	Boreh	Weteng kaku (stiff stomach)	Weding jeruk (<i>citrus sinensis</i>), rwaning cempaka bali (<i>magnolia alba</i>), rwaning ligundi (<i>vitex trifolia</i>), rwaning cambaga, rwaning cembung, temu hitam (<i>curcuma aeruginosa roxb</i>), kencur (<i>kaempferia galanga</i>), sintrong (<i>crassocephalum crepidioides</i>) dewa gnep, sabang manis, pipis tahap.	Apply it to the painful area while reciting the prayer (<i>Ung</i>) idepku pangadeg guruning Bathara Guru, aku ala guru yang guru agung alit amanca warna, sa, kehad tuju lungguh (hlm. 3b)
	Boreh	Large open wounds with itching and swelling	ginger (<i>zingiberzerumbet</i>), black isén (<i>alpinia galanga</i>), turmeric Warang (<i>long turmeric</i>), it's wet, raginya fall lemon (<i>common oeniculum</i>), bawang white (<i>garlic</i>), come (<i>a hearty pen</i>), headtank, filled with vinegar (<i>vinegar</i>).	Bored around the wound Accompanied by reciting prayers <i>mimis urapanya lara...ma, sabaha putih, mwah abang, kadi upah nawar, 3, Ung, mitaha ilang, misaha malih, aja amangan rid aging, muih, mtu ri makulit, waras (hlm.17b).</i>
	Jamu	Loose teeth and blurry eyes (old teeth are dirty, for those who don't want to, myopia is myopia.)	Biduri leaves (<i>colotropis gigantea</i>) is ground until it releases water.	Finely ground biduri leaves are made into herbal medicine. The herbal medicine is used as a mouthwash while reciting a prayer <i>tumis ri tumis, wudug mari wudug, rumput mari rumput, buyan mari buyan, ayan maria yan, gondong, mari gondong, edan mari edan (hlm.1b)</i>
	Boreh	Cough (<i>cekohan</i> or <i>the magpie</i>)	Musk flower (<i>mangifera casturi</i>), asabah alcohol, island (<i>alstonian scholar</i>) old, yeast, sarikuninghis name, solo, coconut milk (<i>Cocos nucifera</i>) the slugduck oil, red onion (<i>ashallots</i>) burnt, plus fennel (<i>common fennel</i>) mixed into one until it becomes a param.	The param is rubbed on the nape and back.

3.3. Lontar Usada Tuju

Usada Tuju Lontar is a collection of Gedong Kirtya Singaraja lontar with code III D 170/2. The sheets number 25, with a skin length of 37.5 cm and a width of 2.5 cm. This lontar is in Balinese Kawi

written by I Ketut Kadjeng. This lontar generally describes diseases related to bone diseases, such as bone pain, aches in the groin, and stiffness in the stomach. The following is a table describing the herbal ingredients and how to mix them, as well as

the treatment techniques for the three diseases contained in Usada Tuju.

Table 3:

Script	Types of Herbal Medicines	Illness	Ingredients/Ingredients	Treatment Techniques
Lontar Usada Tuju	Boreh	Groin pain	Dadap leaves (<i>variegated erythrina</i>), candlenut leaves, lime leaves and sekendal leaves that fall from the tree, plus leaves <i>winggak</i> , sarilungid, coriander, leaves <i>burut</i> and road garbage mixed into one until fine	The mixture is then rubbed on the sore groin
	Boreh	Stiffness in the abdomen	Moringa tree bark (<i>moringa oleifera</i>), pulai tree bark (<i>alstonian scholar</i>), aka awar-awar (<i>figus septica</i>), want teter (<i>solanum verbascifolium</i>), crispy eggplant roots (<i>solanum melongena</i>), Brown rice (<i>oryza sativa</i>) that has been burned, bangle (<i>gingiber casumunar</i>), ginger (<i>zingiber officinale</i>), <i>crassocephalum crepidioides</i> , masoi (<i>cryptocarya massoia</i>), Javanese chili (<i>piper retrofractum Vahl</i>), onion (<i>masoi'cryptocarya massoia'</i> , garlic ' <i>allium sativum'</i> , <i>jangu 'spicy reed L</i>), vinegar water (<i>vinegar wine</i>) mixed and ground until it becomes a paste	The param is applied to the numb and stiff parts of the stomach.
	Jamu	Bone pain	Pure water from springs, <i>we are</i> black, chalk-powder (<i>calcium hydroxide</i>), rice (<i>oriza sativa</i>) mixed with turmeric juice, masoi (<i>cryptocarya massoy</i>) mixed into one and refined until it becomes a herb.	The herbal medicine is drunk and the dregs are rubbed all over the body.

3.4. Lontar Usada Sari

Table 4:

Script	Types of Herbal Medicines	Illness	Ingredients/Ingredients	Treatment Techniques
Usada Sari	Boreh	Swelling	Ginger (<i>zingiber zerumbet</i>) roasted in coals, nutmeg or jebugarum (<i>myristica fragrans</i>), and chicken bones are ground into boreh	Apply the ointment to the swollen body part.
	Boreh	Pain between the abdomen and genitals	Ginger (<i>zingiber zerumbet</i>) burned in the coals of fire and masoi (<i>cryptocarya massoy</i>) is burned over a fire. The ingredients are mixed and ground until they become paste.	Apply the param to the painful area
	Boreh	Gout	Moringa bark (<i>moringa oleifera</i>), island skin (<i>alstonian scholar</i>), aka awar-awar (<i>fig septic burn</i>), want teter (<i>solanum verbascifolium</i>), crispy eggplant roots (<i>solanum melongena</i>), Brown rice (<i>oryza rufifogon</i>) planted in coals, ginger (<i>zingiber zerumbet</i>), ginger (<i>zingiber officinale</i>) <i>crassocephalum crepidioides</i> masoi (<i>cryptocarya massoy</i>), chili bun (<i>piper retrofractum choice</i>), onion (<i>masoi'cryptocarya massoia'</i> , garlic ' <i>garlic, come 'Acorus pen L'</i>), vinegar. All the ingredients are mixed and ground until they become a paste.	Apply to the feet
	Simbuh	Headache accompanied by feelings of restlessness	Squirrel (<i>crassocephalum crepidioides</i>), lime peel, (<i>citrus hystrix</i>), galangal (<i>galanga alpinia</i>), ginger/gamongan (<i>zingiber zerumbet</i>), whole spices, such as nutmeg (<i>mystical fragrance</i>), coriander (<i>Coriander sativum</i>), come (<i>pen L</i>), clove (<i>aromatic syzygium</i>), lime peel (<i>citrus hystrix</i>), galangal (<i>galanga alpinia</i>), All the ingredients are mixed into one and then chewed.	The ingredients that have been chewed are then sprayed onto the head and nape of the neck.
	Simbuh	Bloated stomach	Candlenut (<i>aleuritus oluccanus</i>), bangle (<i>mountain ginger</i>), shallot hearts (<i>garlic onion</i>) mixed into one then chewed,	The chewing is sprayed into the stomach area

Lontar Usada Sari is one of the lontars stored in the Bali Cultural Documentation Center which describes how to treat diseases such as rheumatism,

swelling in body parts, pain between the stomach and genitals, gout, headaches that cause anxiety, and bloating in the stomach which are generally suffered

by the elderly. In addition, this usada lontar also describes diseases suffered by babies and the procedures for becoming a balian/usada healer. The sheets number 34 lempir, with a skin length of 37.5 cm and a width of 2.5 cm. This lontar is in Balinese Kawi.

3.5. Lontar Usada Tiwang

The Usada Tiwang stored in the Bali Cultural Documentation Center consists of three manuscripts. First, the Usada Tiwang coded kropak U/XI/6 consists of 44 lempir, without the year of manufacture and without the author's name, the language used is Balinese Kawi. Second, the Usada Tiwang with the code kropak III.d.286/5 was written in 1951 without the author's name. The number of pages on the lontar is 39 lempir. Third, the Usada Tiwang in the form of a transliteration (translated on December 22, 1943), then re-copied by Ni Made

Sukeranis in 1988. Meanwhile, the Library of the Faculty of Cultural Sciences, Udayana University also stores the Usada Tiwang manuscript with the code kropak 278 No.48 with a total of 37 lempir pages.

Lontar Usada Tiwang discusses various diseases desolate. Desolation is a disease that has the symptoms of body feeling relaxed, pain and aches, restlessness, itchy eyes, stiff muscles and even fainting. Type of disease desolate characterized based on the symptoms that appear, such as North Tiwang has symptoms of restlessness and bulging eyes. Tiwang tojos characterized by symptoms of restlessness, glaring eyes, and hands that won't stay still (*pati grèpè*). Dried shrimp has symptoms of hands and legs moving like shrimp movements and bulging eyes. Usada Tiwang also describes other diseases such as coughs, and mokan (disease with symptoms of swelling and soreness).

Table 5:

Script	Types of Herbal Medicines	Illness	Ingredients/Ingredients	Treatment Techniques
Lontar Usada Tiwang	Bedak and jamu	The whole body feels sore and free up to feet	White medori root (<i>calotropis gigantea</i>), onion which consists of masoi (<i>cryptocarya massoia</i>), garlic (<i>garlic sativum</i>), jangu (<i>spicy reed L</i>), and brown rice mixed to make powder. Tulak wood (<i>sheffer elliptica</i>), pugpug wood (dry wood), galangal (<i>galanga alpinia</i>) chalk, egg white, and thank you (market waste) is mixed and ground into powder. Meanwhile, kesambi (<i>oily schleicheria</i>), girls, majestic (<i>dalbergia latifolia Roxb</i>), replace the lungid mixed until smooth and used as Babakan kepah boreh, pulasari (<i>starry alyxia</i>), air klungah (young coconut ' <i>cocos nucifera</i> ') cooked in the husk mixed to make jamu.	The ingredients that have been made into powder are rubbed all over the body, while the herbal medicine is drunk.
	Jamu	<i>Pus pus</i> (dysentery)	Onion (<i>garlic onion</i>), adas (<i>fennel vulgare miller</i>), and brown rice (<i>oryza rufipogon</i>) mixed until smooth into jamu	The herbal medicine is drunk and the dregs are eaten.
	Boreh	Navel feels sore accompanied by a stiff stomach	Pangi skin (<i>pangium success reinw</i>) that has been burned, add up (dregs from betel nut), onion which consists of masoi (<i>cryptocarya massoia</i>), garlic (<i>garlic</i>) and jangu (<i>acorus pen L</i>), and oil (<i>six hundred thousand</i>). The ingredients are ground into a paste.	The param is applied to the navel area
	Simbuh	Numb hands	Pancasona (<i>tino-spora coriaceae Beumee</i>), yuyu straddle, and fennel (<i>fennel vulgare miller</i>) is used as a supplement.	These ingredients are chewed and then sprayed all over the hands.
	Simbuh	My back hurts and stabbing	Leaves and babakan pulai (<i>alstonian scholar</i>), feared (<i>purple turmeric</i>), sepet-sepet, candlenut (<i>moluccan siltstones</i>), coconut water (<i>Cocos nucifera</i>) that has been roasted, and fennel (<i>fennel vulgare miller</i>) mixed into one to be used as a cure.	These ingredients are chewed and then sprayed all over the back.
	Makanan	Coughing up blood	Turmeric (<i>turmeric longa linn</i>), Javanese crust (<i>tamarindus indica</i>), onion (<i>garlic onion</i>), cooked coconut oil, fried chicken eggs. All these ingredients are used as food.	All of it was eaten by the person with the bloody cough.

4. DISCUSSION

Aging is part of the life cycle and cannot be avoided. Entering old age, the body will naturally experience a decline in condition. Aging can affect all parts of the body, from hair, skin, muscles, bones, teeth, and other organs such as the brain, kidneys, and heart. The aging process can reduce the function of body organs, so that they do not work properly.

This decline in function is what causes various diseases in the elderly. In addition to medical methods, health care or treatment of diseases in the elderly can be done through the provision of traditional medicine based on the usada manuscripts that exist in Balinese society. Traditional medicine using medicinal plants and various other natural materials can be an alternative in treating various diseases suffered by the elderly. The use of medicinal

plants and natural materials in treatment is not only more economical and easy to obtain, traditional medicine is also considered safer in terms of health. Health care techniques and healing of diseases suffered by the elderly are contained in the Usada Durgakala, Usada Tuwa, Usada Tuju, Usada Sari, and Usada Tiwang manuscripts.

4.1. Treatment for Diseases of the Face, Head, Hands, Feet, Bones and Skin

Treatment of diseases of the face, head, hands, feet, and skin that are commonly suffered by the elderly such as itching and swelling, aching in the groin, aching bones, unbearable headaches, and the whole body feels sore and spreads to the feet, numb hands and feet, back pain, and stabbing pain in the back. Treatment of back pain which is also called read it (stiff waist) and sick bancang (waist pain) **In Usada Durgakala it is stated as follows**". Ta, bancang juweh, sa, carman kanangga, pulesai, mnan madhu, wdhakna " (p. 10b), meaning that the medicine for stiff back pain, the ingredients are kenanga tree bark (*cananga odorata*), pulasari tree bark (*alyxia oliviformis*), incense (*styrax*). The concoction is done by mixing the bark of the kenanga tree, pulasari tree, and incense and then grinding it into powder. The treatment is done by applying the powder to the stiff waist. **Meanwhile, the treatment-reading sick said "..."**... ta, bancang sakit, sa carmman kusambi, jruk purut, ckuh, wdhakna (p. 10b), meaning that the medicine for back pain is made from the bark of the Kusambi tree (oily *schleichera*), lime (*citrus hystrix*), and kencur (*kaempferia galanga*). All ingredients such as the bark of the Kusambi tree, kaffir lime fruit, and kencur are mixed into a boreh or param, then the boreh is rubbed on the waist. In Usada Tuju it is stated that the medicinal ingredients for the disease tuju or rheumatism in the stomach is the tip of uyah-uyahan (mint fig) black in color, three sheets and powdered chalk/lime (calcium hydroxide) just a little, then cooked. **The cooking water is used to treat rheumatism sufferers accompanied by the recitation of a mantra:**

Om tuju klinglang anta, duk sateka sabrang malayu mwah po kita ring bali, amatenin tuju teluh tranjana, amuppug amunah amejah tuju kabeh, tuju bengang, tuju rasa, pejah pupug punah, tuju pepet, tuju banyu, tuju wulap, tuju banta, pejah pupug punah, tuju brahma, tuju genti, tuju caket, angin, tuju turon, tuju berwang, pejah pupug punah, tuju rambut, tuju mega, tuju awun-awun, pejah pupug punah, aja kita mangan ring kulit, ring daging, ring otot, ring balung, ring sumsum, aja sira amangan

ring garba, ring pupusuh, ati limpa, ring ungsilan, ring ampru, lep sira pejah pupug punah (hlm.12a). In the Usada Sari manuscript, the treatment for rheumatism (*encok*) involves a mixture composed of moringa bark (*Moringa oleifera*), pulai bark (*Alstonia scholaris*), roots of awar-awar (*Ficus septica*), teter root (*Solanum erianthum*), terong kripit root (*Solanum melongena*), and red rice (*Oryza rufipogon*) roasted over embers. Additional ingredients include lempuyang (*Zingiber zerumbet*), ginger (*Zingiber officinale*), and various spices such as nutmeg (*Myristica fragrans*), coriander (*Coriandrum sativum*), jangu (*Acorus calamus*), clove (*Syzygium aromaticum*), masoi (*Cryptocarya massoia*), long pepper (*Piper retrofractum* Vahl), trikatuka (a combination of masoi, garlic - *Allium sativum*, and jangu), and vinegar. These components are ground into a boreh or param (herbal paste), which is then applied topically to the afflicted area of the lower back. Regarding body aches that radiate to the legs, the Usada Tiwang manuscript prescribes the use of white biduri root (*Calotropis gigantea*), trikatuka (comprising *Cryptocarya massoia*, *Allium sativum*, and *Acorus calamus*), and red rice (*Oryza rufipogon*), all of which are processed into a herbal powder (*bedak*). Other materials include tulak wood (*Schefflera elliptica* Harmas), dry wood, galangal (*Alpinia galanga*), slaked lime, egg white, and luwun peken (organic waste collected from the market). These ingredients are also ground into powder form. Furthermore, the manuscript mentions alternative remedies for similar symptoms using *kesambi* leaves (*Schleichera oleosa*), *majekane*, *majakeling* (*Terminalia chebula*), and *ganti lungid*, which are used in the form of a full-body boreh. Another alternative treatment involves boiling the bark of the *kepah* tree and pulasari (*Alyxia reinwardtii*) in young coconut water (*Cocos nucifera*), heated within rice husks. Once the mixture reaches boiling point, the decoction is consumed orally.

4.2. Treatment of Diseases of the Nervous System, Mouth, and Stomach

Pain in the nervous system, brain, mouth, and stomach that is often suffered by the elderly, such as impotence, stomach cramps, bloody and purulent stools, pain between the stomach and genitals, bloating in the stomach, dysentery, and a painful navel. **The healing of impotence in Usada Durgakala is mentioned** ta, panglanang purus aletet, tur kna kama tus, sa, pleming ayam walile, gempong dapdap wong,³ tngih, akah teter, lajering empelan, krikan elu, srbuk sambu, mica, pipis kabeh, lengis wayang, pet ring dina tumpek, yan puput

lengha itu (p.23a). The quote can be translated that the disease of men whose genitals do not function properly and suffer from love sickness can be treated by using chicken eggs. walile, gempong dapdap wong 3 (thorny dapdap tree) *erythrina fusca*, teter tree roots (*Solanum nutmeg*), next time (plants that live in dams), the creek (scraping) pestle, sambu powder, pepper (black pepper L). These ingredients are ground and then mixed with wayang oil (wayang oil obtained on the day tumpek, namely Saturday wuku kliwon). After the mixture becomes one, apply it to the penis while reciting a mantra. "Om Sang Hyang Brahma woh inghulun purus don agung akas adawa, langgeng angmet,3, lepakna ring pasta" (hlm.23a). Pain between the stomach and genitals is mentioned in Usada Sari, ingredients such as bangle bulbs (mountain ginger) and masoi (*cryptocarya massoia*) which is baked. The two ingredients are then ground into a paste or param and rubbed between the stomach and genitals. In the Usada Tuwa manuscript, the treatment for abdominal cramps involves a preparation composed of the juice of orange (*Citrus sinensis*), the bark of cempaka (*Magnolia alba*), ligundi bark (*Vitex trifolia*), cambaga bark, cembung bark, black turmeric (*Curcuma aeruginosa* Roxb), aromatic ginger (*Kaempferia galanga*), sintrong (*Crassocephalum crepidioides*), sabang manis, and pipis tahap. These ingredients are pounded into a param (herbal paste) and applied topically to the abdominal area experiencing pain. **During the treatment, a healing mantra is recited** "Ung idepku pangadeg guruning Batara Guru, aku ala guru yang guru agung alit amanca warna, sa, kehad tuju lungguh" (p. 3b). Meanwhile, the Usada Sari manuscript mentions a remedy for bloated stomachs consisting of white dusa-klingé, candlenut core (*Aleurites moluccanus*), bangle (*Zingiber montanum*), and the core of red onion (*Allium cepa*). These ingredients are mixed, chewed together, and the extract is then blown (sprayed) onto the abdominal area (p. 7a).

4.3. Treatment for Weakening of the Function of the Five Senses

In old age, there is a process of decline in the function of the five senses, such as sight, hearing, smell, and taste. Common diseases that appear in the elderly due to dysfunction of the five senses, such as loose teeth and blurred or watery eyes. In the Durgakala palm leaf, it is also stated about the treatment of watery eyes. To treat watery eyes, the palm leaf states ta mata lara pceh tûr kuûpà. Ūa, sumaga bali, jroti, jlawe, asab kabeh, we jeruk

linglang, olesàkna. Malih ûaranàsampar wantu magsêng, ulig yehin jruk, oles. Malih tamba, ûa, myanà cmêng, jinah dwit maasab, lunak, tmu tis, jlawe, wwai jruk, sami masab oles (p.10). The quote can be translated that the means of treating watery eyes is grapefruit or jroti orange (*(citrus maxima')*) and please which is heated and the juice is taken. The juice is mixed with lime juice (*(citrus aurantifolia.S)*), then applied to the sore eye. Other means can also be used to treat the disease, namely by slap help magnesium which is rinsed and then given lime juice. The rinse water and lime juice are applied slowly to the sore eye. The manuscript also mentions treating sore eyes using sarana maja hitam (eagle marmelos), jinah dwit maasab, sour (*tamarindus indica*), temu lawak (*curcuma zanthorrhiza*), jlawe, orange juice (*(citrus)*) mixed together. The mixture is used as a topical medicine on the eye area. Treatment for loose teeth in the Lontar Usada Tuwa mentions that the ingredients used are biduri leaves (*colotropis gigantea*) which is boiled until thick. The boiled water is used for gargling. The prayer recited while gargling is tumis ri tumis, wudug mari wudug, rumpuh mari rumpuh, buyan mari buyan, ayan maria yan, gondong, mari gondong, edan mari edan (p. 1b).

5. CONCLUSION

Usada Durgakala, Usada Tuwa, Usada Tuju, Usada Sari, and Usada Tiwang are part of the usada manuscripts that contain information about health care and the treatment of diseases using herbal ingredients and other natural materials with treatment procedures in the context of Balinese culture. Common diseases suffered by the elderly contained in the four manuscripts consist of (1) treatment of diseases of the face, head, hands, feet, and skin such as itching and swelling, aching in the groin, painful bones, unbearable headaches, pain all over the body and radiating to the feet, numb hands and feet, back pain, and stabbing pain in the back, (2) treatment of diseases of the nervous system, brain, bones, mouth, and stomach that are often suffered by the elderly, such as impotence, stomach cramps, bloody and purulent stools, pain between the stomach and genitals, bloating in the stomach, dysentery, and pain in the navel, and (3) diseases that occur due to the process of decreasing the function of the five senses, such as loose teeth and blurred vision. The medicinal ingredients used to treat the disease are sourced from local plants and natural materials that are easy to obtain and inexpensive because the ingredients can easily be found in the surrounding nature, the technique of mixing the ingredients is

very simple, and the technique of curing the disease is not too complicated. The ritual of treatment is based on the context of Balinese Hindu culture. The

form of herbal concoction presented in the manuscript is in the form of boreh, jamu, add, scrub or param, bedak, food.

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