



## INTERNET USE PATTERNS IN THE UTILIZATION OF HERBAL MEDICINE FOR CHRONIC DISEASES IN DENPASAR CITY

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### ABSTRACT

The increasing use of the internet and the correctness of information causes different community knowledge about using herbal medicine for chronic diseases. This study aimed to compare knowledge levels of herbal medicine for chronic illnesses sourced on the internet. This study used a cross-sectional survey design. The number of samples used was 318. The inclusion criteria are people aged 18-60 years, know what chronic disease means (through questions in the questionnaire), and live in Denpasar City. The exclusion criteria were people who worked as health workers. Data were collected using a questionnaire and analyzed using the Kruskal-Wallis test. The results showed that most people searched using web/search sites (100%) and social media groups specifically for herbal medicine (86.5%). Knowledge of herbal medicines through web/sites and social media/chat information sources has a good understanding of 82.4% and 70.6%. Poor Knowledge of herbal medicine while using both sources of information (32.2%) and value statistics  $p=0.04$  ( $p<0.05$ ). There is a difference in the knowledge level about herbal treatments for chronic diseases between those sourced on social media and the internet. The use of the internet and social media helps people understand the content of herbal medications to treat chronic diseases.

Keywords: herbal; internet; social media; web

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## INTRODUCTION

Information is one of the most sought-after things in society. Access to information that is most widely used by the community is through the internet. The research showed that from 953 samples of people looking for information, the most use the internet (885)(Zucco et al., 2018)(Zucco et al., 2018). Information technology that is increasingly developing makes it easier to get various information, especially related to health. The study results show that most people have access to health information searches, and the development is supported by research that states that 8 out of 10 internet users are looking for health information(Ventola, 2014). One of the most accessible health information is about medicine. The report results show that 56% of internet users are looking for information about drug use(Fox, 2011). The study results also reported that 98% of internet users use to access social media and web content, 70% use social media, 53% use chat applications, and 85% use the web(Asosiasi Pengguna Jasa Internet Indonesia, 2018). The use of drugs in the community is very high to support health. One of the most widely used medicinal uses is herbal remedies for chronic diseases. Herbal therapy in Indonesia is used by 40% of the entire population and 70% of the

rural population (Kusumo et al., 2020). The high level of public trust regarding the perception of herbal medicine causes this treatment method to be widely used to cure chronic diseases. Several herbal remedies are proven to be able to cure illnesses suffered by people. However, the results of other studies on herbal medicine are proven to be the cause of the delay in carrying out medical treatment in breast cancer patients, with a prevalence of herbal use of 60.9% (Bahar & Anwar, 2015). Another result different from research in Malaysia regarding other breast cancer, which states that the use of herbs inhibits the growth of breast cancer cells (Mujar et al., 2017).

The instability between the success and failure of herbal remedies is due to the lack of public knowledge about their proper use in chronic diseases. Easy access to information about drugs on the internet will make it easier for people to get information, but the main limitation is the correctness of the data. For now, no regulations are governing herbal medicine information on the internet. Therefore it is necessary to conduct a study on internet use with knowledge of herbal medicine for chronic diseases. Based on these problems, the study to determine a comparison of knowledge levels of herbal medicine for chronic diseases sourced on the internet. The research objectives to determine the characteristics and patterns of internet use in knowledge of herbal medicine in Denpasar City to determine the differences in internet use based on the web, social media, and Android applications (chat-based) on knowledge of herbal medicine for chronic diseases in Denpasar City.

## **METHOD**

The research used a cross-sectional survey design (quantitative) and obtained ethical clearance permit number No.1025-03/UNBI/FK/PSFK/IV/2024. The study provides a questionnaire of direct questions to the public Mei-Juni 2024 in Denpasar City with the sampling method used purposive sampling. Data analysis used the Kruskal-Wallis test to determine a comparison of knowledge levels of herbal medicine for chronic diseases sourced on the internet. The sample calculation uses a formula to find out how much the difference between the independent variables (Sastroasmoro & Ismael, 2014). The results of the calculation obtained a sample of 318. The inclusion criteria are people aged 18-60 years, know what is meant by chronic disease (through questions in the questionnaire), and live in Denpasar City. The exclusion criteria were people who worked as health workers. Informed consent gave before filling out the questionnaire through selection, which contained consent to the use of personal data, length of time to fill out the questionnaire, benefits, inconvenience, research risk, and confidentiality of sample data. Then, if the respondent agrees, they will follow it by filling out a questionnaire. The research was quantitative. Meanwhile, the preparation of quantitative and qualitative questionnaires. The quantitative arrangement compares the R-count value with the R-table. A qualitative interpretation was carried out using a focus group design (FGD). Content validation using language experts and FGD with doctor-pharmacist. Validation and reliability tests were carried out in Badung Regency. The selection of Badung Regency is similar to where the result was conducted in Denpasar City (Putra & Yadnya, 2018). Validity and reliability test using 42 samples. The test results are valid-realistic, if the R-Table value is  $> 0.304$  (validity) and Cronbach's Alpha  $> 0.60$  (reliability). The smallest validity value was 0.402, and the reliability was 0.73.

## **RESULTS**

### ***Demographic characteristics of the sample***

The results of the demographic characteristics of the sample are shown in Table 2. There are more female gender than male. Variable Age 18-25 years is more than 26-35 and 36-45 years. The number of unemployed workers is higher than that of private employees, government

employees, and entrepreneurs. High school education is less than college. There is more unmarried marital status than married.

Table 1.  
Demographic characteristics of the sample

Demographic characteristics of the sample	f (n=318)	%
<b>Gender</b>		
Female	227	71.4
Male	91	28.6
<b>Age (year)</b>		
18-25	198	62.3
26-35	89	28.0
36-45	31	9.7
<b>Job</b>		
Unemployed	173	54.4
Government employees	25	7.9
Private employees	96	30.2
Entrepreneurs	24	7.5
<b>Education</b>		
High school	134	42.1
College	184	57.9
<b>Marital status</b>		
Unmarried	251	78.9
Married	67	21.1

**Internet Application**

The results of using the internet by using the web/site to search for herbal medicinal information are shown in table 3. The most widely used web is using search sites.

Table 2.  
Searching for Herbal Medicine Information Using the Web/Site.

Searching for Herbal Medicine Information Using the Web/Site (n=192)	Yes (%)	No (%)
Used web is using search sites (Google/Yahoo/Opera)	192 (100)	0 (0)
Web Government	97 (50.5)	95 (49.5)
Web Health professional organizations	82 (42.7)	110 (57.3)
Web International Health Organization	43 (22.3)	149 (77.7)

Using the internet by using social media/chat applications to find information on herbal medicine is shown in table 4. Social media groups about using herbal specific drugs are primarily compared to other social media/chat groups.

Table 3.  
Searching for Herbal Medicine Information Using Social Media/Chatting Apps

Searching for herbal medicine information using social media/chatting apps (n=216)	Yes (%)	No (%)
Social media group about herbal medicine specialty	187 (86.5)	29 (13.5)
Social media groups about non-herbal medicines	183 (84.7)	33 (15.3)
Social media groups about chronic illness	160 (74)	56 (26)
Social media groups about health behaviors	91 (42.1)	125 (57.9)
Chat with health professionals	37 (17.2)	179 (82.8)
Chatting herbal medicine group	25 (11.5)	191 (88.5)
Non-herbal medicinal group chat	13 (6)	203 (94)

**The knowledge of herbal medicines for chronic diseases**

The results of the questions regarding herbal medicine are shown in table 5. Based on the content of herbal medication, the answer is that most herbal medicines only consist of herbal ingredients. The use of herbal drugs in chronic diseases needs to get advice from doctors-pharmacists who most choose to know the use of herbal medications, dosages, and side effects. For the function of herbal medicine in chronic disease, most respondents answered

that it was for health maintenance and supportive therapy. Meanwhile, all the properties of herbal medicine, most of the respondents answered that herbal medicines do not have the same properties as chemical drugs.

Table 4.  
The knowledge of herbal medicines for chronic diseases

The knowledge of herbal medicines for chronic diseases (n=318)	f (%)
Ingredients	
Herb ingredients	268 (84.3)
Herb ingredients combined with chemicals	50 (15.7)
Whether using herbal for chronic diseases, you need advice from a doctor-pharmacist	
No need for advice from a doctor-pharmacist	50 (15.7)
It is necessary to know when to use herbal medicine	36 (11.3)
Need to know the dosage of herbal medicine	10 (3.1)
Need to know the side effects of herbal medicine	27 (8.5)
Need to know when to use and dosage of herbal medicines	16 (5.0)
Need to know when to use and side effects of herbal medicines	30 (9.4)
Need to know the dosage and side effects of herbal medicines	17 (5.3)
Need to know when to use, dosage, and side effects of herbal medicines	132 (41.5)
The function of herbal medicine in chronic diseases	
The primary therapy of disease (without a combination of chemical drugs)	50 (15.7)
Health maintenance	48 (15.1)
Auxiliary therapy (supportive)	88 (27.7)
Health maintenance and auxiliary therapy	132 (41.5)
All herbal remedies have the same properties as chemical drugs to treat chronic diseases	
Yes	56 (17.6)
No	206 ( 64.8)
Do not know.	56 (17.6)

**The results of the Kruskal-Wallis test**

Table 5.  
The results of the Kruskal-Wallis test

Characteristics of the sample	Web/Sites(%)	Social Media/Chatting (%)	Web/Sites and Social Media/Chatting (%)	p
Gender				0.62
Female	73 (71.6)	93 (73.8)	61 (67.8)	
Male	29 (28.4)	33 (26.2)	29 (32.2)	
Age (year)				0.95
18-25	65 (63.7)	77(61.1)	56 (62.2)	
26-35	27 (26.5)	38 (30.2)	24 (26.7)	
36-45	10 (9.8)	11 (8.7)	10 (11.1)	
Job				0.21
Unemployed	56 (54.9)	64 (50.8)	53 (58.9)	
Government employees	8 (7.8)	8 (6.3)	9 (10)	
Private employees	33 (32.4)	39 (31)	24 (26.7)	
Entrepreneurs	5 (4.9)	15 (11.9)	4 (4.4)	
Education				0.95
High school	42 (41.2)	53 (42.1)	39 (43.3)	
College	60 (58.8)	73 (57.9)	51 (56.7)	
Marital status				0.75
Unmarried	81 (79.4)	97 (77)	73 (81.1)	
Married	21 (20.6)	29 (23)	17 (18.9)	
The knowledge of herbal medicines for chronic diseases (median)				0.04*
Not good	18 (17.6)	37 (29.4)	29 (32.2)	
Good	84 (82.4)	89 (70.6)	61 (67.8)	

The results of the Kruskal-Wallis test are shown in table 6. Demographic characteristics variables did not provide a significant difference between the web, social media/chat

applications, and the use of both media together ( $p > 0.05$ ). However, knowledge of herbal medicine for chronic disease provided a significant difference with the web, social media/chat applications, and the use of both media together ( $p < 0.05$ ).

## **DISCUSSION**

The results of this study demographic characteristics of the sample are in line with research that shows that 18-25-year-olds and Students of colleges access social media more. Students of colleges search a lot of information via the Internet using cellphones and are accessed a lot because there are posts on the media or shared in social groups (Azman, 2018). The results of other studies also show that the Internet is more preferred by teenagers, especially in obtaining information (Ainiyah, 2018). From the survey results, social media users who are most dominant are women. Because women are creatures who like to socialize, one of which is sharing information to communicate through social media (Saputra, 2019). The results of this study knowledge of herbal medicines for chronic diseases are in line with research that traditional medicine can contain chemicals, which are very risky for health if the public does not know the dangers of the content. Therefore, advice from health workers is needed (Oktaviani et al., 2020). Other studies also support the results that say doctors are starting to involve herbal medicines in treatment, which has scientific evidence as a complementary therapy (Fitriana, 2018).

The results showed that differences in the use of the internet influenced the knowledge of herbal medicine for chronic diseases because the use of the web prefers more search sites and more practical. The results showed that it is easier for people to get drug information (Wingwirawan & Soyusiawati, 2014). Other research also states that the results of this study are a website-based herbal medicine data system that can make it easier for people to search for herbal medicine information (Wulandari et al., 2017). The difference in knowledge of herbal medicine on internet use is due to using the web to have reliable sources of information compared to social media/chat applications. Another study states that the use of social media in drug information has more negative sides (Giustini et al., 2018). The results are indicated by research data that says that web users have a lower level of knowledge than social media. The results of other studies also show that authors of medical information on the web and social media are often unknown or only limited to informal information (Pirraglia & Kravitz, 2012), (Moorhead et al., 2013). The results of other studies show the influence of information on the function of herbal plants through social media, and information through social media can change the behaviour of people who return to using traditional medicine (Perdani & Hasibuan, 2021). The results of other studies stated that the more information obtained about the selection of conventional medicine, the possibility of people choosing and adding knowledge to traditional medicine (Ismail, 2015).

The results showed that some respondents could easily find the knowledge of herbal medicinal contents from the Internet. The research is evidenced by a study that states that people can quickly find out the components of herbal medicine through the Internet (George et al., 2014). Furthermore, Internet usage also provides access to information on herbal medications, dosages, and side effects. Therefore, the public can have considerations before using drugs and consult a doctor-pharmacist. The results of other studies also support that patients have better access to health information via the Internet and hope to be more involved in health decision making (Tan & Goonawardene, 2017). In addition, the use of the Internet helps provide information on chronic diseases related to herbal medicine, thereby improving cognitive function, achieving better mental health and lifestyle (Dimitrov, 2016). Traditional Medicine is still widely used for the treatment of various chronic diseases in Indonesia,

indicating its potential for further development. However, nonadherence and uncontrolled Traditional Medicine use indicate potential issues of its irrational use. Therefore, further development of strategies to optimize use in Indonesia is needed.(Pradipta et al., 2023)

The function of herbal medicine in the treatment of chronic diseases is for health maintenance and supportive therapy. Almost some respondents already know this. The study is evidenced by the use of search websites and social media groups about which specific herbal remedies are most highly used. The result provides knowledge to the public about the function of these herbal medicines quickly and practically. However, some respondents still do not understand the role of herbal medicine in chronic diseases. Safety information is key to the lack of using herbal medicine appropriately. The result is supported by research on web / social media safety information that herbal medicines must continue to consult doctors-pharmacists for the right decision(Owens et al., 2014). Another result also states that the public knows that herbal medicines are more widely used as supplements to help cure chronic diseases(Huang et al., 2019). All herbal medicines do not have the same benefits as chemical drugs. Research data states that only some respondents understand this. This difference in understanding is due to the lack of respondents using social media/chat applications with health workers and more using web searches or special social media groups to use herbal medicines. Therefore, the information obtained is also incorrect. The results of other similar studies show a gap between current patient interest in online communication with doctor-pharmacists(Lee et al., 2016). The results of other studies suggest that the chat application is best whether used as a communication tool between health professionals and the general public or as a learning tool to provide health care(Giordano et al., 2017).

## **CONCLUSION**

There is a difference in the level of knowledge of chronic disease herbal medicines between those sourced on social media and the internet. The use of the internet and social media helps people understand the content of herbal medicines. In addition, the use of the internet also provides access to information about its use, dosage, and side effects, especially for the treatment of chronic diseases. However, safety information still needs to be considered because social media and internet information sources provide different understandings of herbal medicines. It is necessary to innovate the government's a web/social media display in the health sector, professions, and international health organizations to become more attractive so that people are interested in seeking information. In addition, the use of community chat applications with doctors and pharmacists needs to be increased to ensure medication safety.

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