Effectiveness of Community Based Interactive Approach Method on Community Perception in Utilizing Gotu Kola

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Abstract

Gotu kola is a medicinal plant that is readily accessible, yet it remains underutilized. This research aims to analyze the effectiveness of the Community Based Interactive Approach method on community perception in utilizing gotu kola in Mojorejo Village, Batu City. The research design used a quasi-experimental control group pretest-posttest design. The sampling technique was purposive, with 20 respondents in the treatment group and 20 in the control group. Perception before and after the intervention was measured using a questionnaire. Validity and reliability tests were conducted on the research instruments before use. The research results show that before implementing the method, 80% of respondents' perceptions were categorized as high. After implementing the Community Based Interactive Approach method, all respondents' perceptions increased to the high category. Statistical results using the Wilcoxon test showed an effect of Community Based Interactive Approach on perception in the treatment group ($p < 0.001$). The Community Based Interactive Approach method effectively improves the community's perceptions in utilizing gotu kola.

Keywords: *Community Based Interactive Approach, Perception, Gotu Kola.*

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A. INTRODUCTION

Centella asiatica (L.) Urban, commonly recognized as "Gotu kola," is a medicinal plant that belongs to the Apiaceae family (MK et al., 2024). Gotu kola is a potential medicinal plant because it is easily found in plantation areas, roadsides, and rice fields (Sutardi, 2016). Gotu kola is indigenous to South America, Papua New Guinea, SriLanka, Venezuela, Bangladesh, India, Madagascar, Malaysia, Indonesia, Mexico, Pakistan, and other Asian countries (Mushtaq and Qayyum, 2018). Gotu kola has long been used as a traditional medicine in Indonesia (Damayanti, Antari, and Megayanti, 2022), China, and India (Ankita et al., 2024). For approximately 2000 years, gotu kola has been utilized in Chinese herbal medicine, and for 3000 years in Indian Ayurvedic medicine (Samuel et al., 2022). The plant has several pharmacological effects, including anti-inflammatory, antioxidant, anticancer, and wound-healing qualities, due to its large variety of bioactive components, comprising triterpenoids, saponins, flavonoids, and alkaloids (Ankita et al., 2024).

Regarding the utilization of traditional and complementary medicine worldwide, the World Health Organization obtained data that traditional and complementary medicine are used by 88% of member countries across the World Health Organization regions, and more than 90% of member countries in the Eastern Mediterranean, Southeast Asia, and Western Pacific regions (World Health

Organization, 2019). Meanwhile, according to the Indonesian Health Survey data of 2023, the proportion of the utilization of traditional health services in the community is 32.5% (Ministry of Health Republic of Indonesia, 2023). The formula used in traditional health services comes from a family medicinal plants (TOGA). TOGA are home-cultivated plants that have medicinal properties (Mildawati et al., 2023). According to Indonesian Health Survey data of 2023, the proportion of the community utilizing TOGA decreased from 24.6% to 10% (Ministry of Health Republic of Indonesia, 2023) compared to 2018 Basic Health Research (Ministry of Health Republic of Indonesia, 2019).

The community's perception may influence the low utilization of medicinal plants such as gotu kola. People didn't know that gotu kola has medicinal properties, how to plant gotu kola well, or how to process it into traditional medicine. Perception formation occurs when a person receives stimuli from the environment, which is taken in through the senses and then processed through the thinking process by the brain to form an understanding (Alizamar and Couto, 2016). About the low utilization of gotu kola in the community, it is necessary to carry out promotive and preventive efforts by utilizing medicinal plants. One method that can be applied is the Community Based Interactive Approach (CBIA). CBIA involves an individual actively listening, seeing, writing, and evaluating (Widiastuti et al., 2022).

The CBIA method had proven to have an impact on the knowledge of homemakers about medication use in Lelabu Village, Central Aceh District (Burdah et al., 2024). The CBIA method also effectively influenced the knowledge level of self-medication for skin fungus among female students at Al-Mubarok Medono Pekalongan Islamic Boarding School (Sabila et al., 2022). Not only related to the selection or use of medication, the CBIA method has also been researched to effectively increase the knowledge of type II diabetes mellitus patients about diabetic foot exercises (Rina, Narmawan, and Tahiruddin, 2021). It prompted the researcher to study the Effectiveness of the CBIA Method on Community Perception in Utilizing Gotu Kola in Mojorejo Village, Batu City.

B. LITERATURE REVIEW

1. Community Based Interactive Approach (CBIA)

Community-Based Interactive Approach is a community education method that emphasizes independent learning and involves participants actively discussing and seeking information from written media sources to enhance knowledge, skills, and attitudes in making the appropriate drug choices needed for rational self-medication. The CBIA method is prioritized for homemakers through health cadres who are active in the community. Through this method, it is expected that the community, especially mothers, can be more active in seeking information related to the medications used by their families, properly using and managing medications at home, and being critical of the information available. The characteristics of the CBIA method include being interactive (small group discussions), promoting a self-learning process, providing knowledge, skills, attitudes, and critical behavior to the

community, encouraging active information-seeking behavior, and utilizing community forums (Ministry of Health Republic of Indonesia, 2020).

Several community empowerment activities regarding self-medication using the CBIA method have been carried out in various regions in Indonesia (Viviandhari, Maifitrianti and Nurhasnah, 2022). Unlike general education or training activities, community education using the CBIA method is conducted by actively involving the participants (Wikaningtyas et al., 2023). In implementing the CBIA method, participants are divided into several small groups, each accompanied by a resource person acting as a facilitator who delivers the material actively and visually through direct observation (Permatananda, Aryastuti and Cahyawati, 2020).

2. Perception

According to the Indonesian Dictionary, perception is the direct response (acceptance) to something or the process by which a person knows certain things through their senses. According to Davidoff, perception is a stimulus sensed by an individual, which is then organized and interpreted so that the individual becomes aware and understands what is being sensed. An individual can have a perception if there is an object, sensory organs (receptors), and attention (Warsah and Daheri, 2021). Perception can be defined as a process in which the environment and the connotations of sensory motivation are identified and interpreted. Perception can be reconsidered through thought and can occur subliminally without conscious awareness (Saini, Kumar and Kaur, 2020).

Perception is an essential concept in psychology because humans view their world through perception. Many experts have researched perception, and most authors and researchers describe perception as the process of interpreting information received by the senses. Perception is a top-down process in which the brain organizes information and brings it into a context. Furthermore, it produces a person's perspective on something as an individual interpretation and/or one that can be socially and culturally understood (Alizamar & Couto, 2016).

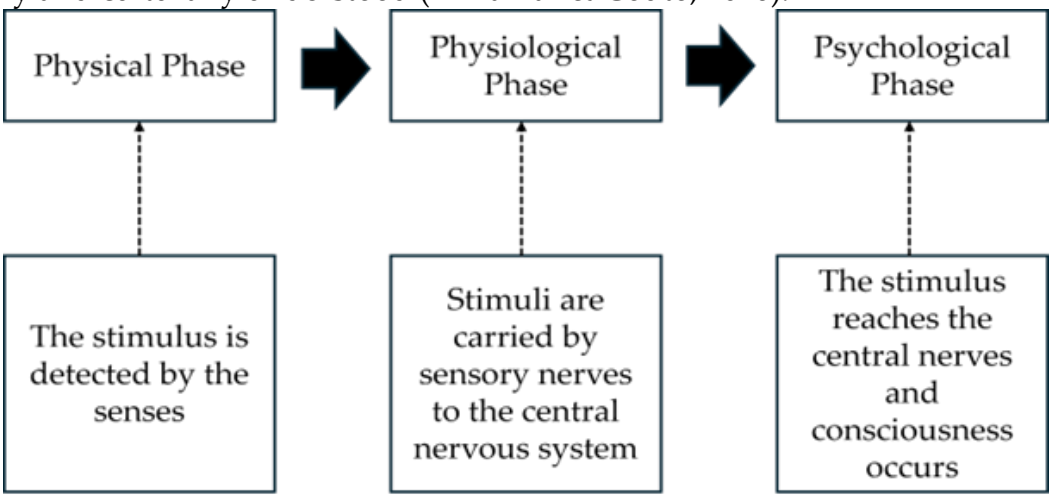

Figure 1 Stages of Perception Viewed from the Aspect of Perceptual Psychology
Source: Alizamar and Couto (2016)

3. Gotu kola

Gotu kola is one type of medicinal plant that has long been known by the community for its use as a traditional medicine ingredient. The taxonomic classification of gotu kola is as follows (Indonesian Food and Drug Authority, 2016) :

Division : Tracheophyta
Subdivision : Spermatophyta
Class : Magnoliopsida
Order : Apiales
Family : Apiaceae
Genus : Centella
Species : *Centella asiatica* (L.) Urb.

Figure 2 Gotu Kola (*Centella asiatica* (L.) Urb.)

Gotu kola has the habit of a perennial herb or herbaceous plant, with short tubers, branched runners or creeping stolons, 10-80 cm long. It has simple leaves arranged in a rosette (2-10 leaves), sometimes slightly hairy, with petioles up to 50 mm long. The leaf blades are kidney-shaped, broad and rounded, 1-7 cm long, with margins ranging from wavy to serrated, especially toward the leaf base. The inflorescence consists of compound umbels, single or 3-5 umbels emerging from the leaf axils, with a 5-50 mm long central flower stalk. The flowers are generally three, with a central sessile flower and two lateral flowers with short stalks, having two bracts 3-4 mm long and ovate, with mauve petals 1-1.5 mm long and up to 0.75 mm wide. The fruit is flat, about 7 mm wide and 3 mm high, with two grooves, distinct ribs, yellowish-brown in color, and moderately thick-walled (Indonesian Food and Drug Authority, 2016).

Gotu kola has a wide distribution area, especially in tropical or subtropical regions. Gotu kola often grows wild in grasslands, garden edges, rice fields, and even yards. Gotu kola grows best at temperatures between 20-30°C. A relative humidity above 60% will support good growth. Regular watering is necessary in environments with low humidity due to the gotu kola's shallow root system. Stable rainfall helps maintain the soil moisture needed by the plant. The rainfall required to grow optimally is 1500–2500 mm per year. Gotu kola requires enough sunlight but should not be exposed to direct, intense sunlight. Gotu kola can grow optimally in areas with an elevation 200 – 800 meters above sea level. Harvesting can be done by cutting the

herb parts (leaves and stems) using sharp and clean harvesting tools. Harvesting can be carried out 3-4 times a year. Rejuvenation is done after the plants are 2 years old. Generally, gotu kola plants can be propagated generatively (by seeds) and vegetatively. Propagation by seeds is still very rarely done. What is commonly practiced by farmers is vegetative propagation using stolons (Ernawati et al., 2023).

Gotu kola contains terpenoids, flavonoids, alkaloids, tannins, steroids, and phenolic compounds. The main components of gotu kola are terpenoid compounds, which include asiaticoside, madecassoside, asiatic acid, and madecassic acid (Amalia et al., 2024). Pharmacological actions of gotu kola include antioxidant, wound healing, memory enhancing, gastric ulcer healing, cytotoxic and antitumor, neuroprotective, cardioprotective, antidepressant properties, hepatoprotective, immunomodulating, anabolic effect, radioprotective, effects on venous insufficiency, antiviral, antifertility, antiprotozoal, antipsoriatic, antitubercular and antileprotic, antifilarial, slimming, antispasmodic, effect on skin, antiepileptic properties, and antidiabetic activity (Samuel et al., 2022).

C. METHODS

The research design used a quasi-experimental control group pretest-posttest design. A population consists of a group of individuals who exhibit the same characteristics within a defined area. The population provides researchers with a comprehensive understanding of the group being studied and facilitates the exploration of various phenomena and issues (Willie, 2024). In research, it is preferable to select a representative portion of the larger population called a "sample" through a process called "sampling" (Sarfo et al., 2022). The study population consists of 144 PKK (family welfare empowerment) mothers. The sample size was 40 respondents (20 in the treatment group and 20 in the control group). The sampling technique was purposive sampling. The purposive sampling method is when someone is deliberately chosen because of certain traits and qualities they possess. It is also called judgment sampling (Hossan, Dato' Mansor and Jaharuddin, 2023). Before the research was conducted, the researcher asked the prospective respondents if they would become respondents by signing the informed consent form.

This research is located at Mojorejo Village, Batu City, East Java, Indonesia. The CBIA method was conducted in 2 meetings, and conventional counseling was conducted in 1. In the CBIA method, the researcher, as a presenter, delivers information using PowerPoint presentation media related to utilizing gotu kola for health, plays a video associated with the processing of gotu kola, provides discussion material or quizzes to respondents divided into small groups (a facilitator accompanies each group), and demonstrates cultivation of gotu kola and processing of gotu kola into traditional medicine. Meanwhile, in conventional counseling, the researcher as a presenter only delivers information using PowerPoint presentation media.

The independent variable of this research was the CBIA method, and the dependent variable was perception. Perception was measured using a questionnaire.

Respondents filled out the questionnaire before and after receiving the CBIA method and conventional counseling. The perception questionnaire consists of 11 statements (5 positive statements and 6 negative statements) that describe the interpretation of gotu kola, such as morphology, benefits, and processing methods.

Before the research instruments were used as data collection tools, a trial was conducted first to determine the accuracy of the instruments in measuring specific data. The tests conducted were validity tests and reliability tests. The validity and reliability test of the questionnaire was conducted by distributing the questionnaire to 30 respondents. The Wilcoxon test is a statistical test used to analyze perception before and after treatment. The data analysis in this study is conducted using the program SPSS 27 (Statistical Package for Social Sciences). The Health Research Ethics Committee of STRADA Indonesia University, Kediri, approved the research protocol, which has the reference number 0223451/EC/KEPK/I/02/2025.

D. RESULTS AND DISCUSSION

1. Validity Test

A validity test examines data to determine whether it can be trusted for its accuracy. A questionnaire is considered valid if the p-value is less than 0.05 and if the calculated r-count exceeds the r-table value (the questionnaire item is significantly correlated with the total score). The r-table value used is 0.361 (30 respondents).

Table 1 Validity Test Results

Statement	r-count	r-table	p-value	Description
1	0,642	0,361	< 0,001	Valid
2	0,439	0,361	0,015	Valid
3	0,719	0,361	< 0,001	Valid
4	0,650	0,361	< 0,001	Valid
5	0,539	0,361	0,002	Valid
6	0,583	0,361	< 0,001	Valid
7	0,427	0,361	0,019	Valid
8	0,396	0,361	0,030	Valid
9	0,447	0,361	0,013	Valid
10	0,466	0,361	0,009	Valid
11	0,538	0,361	0,002	Valid

Based on Table 1, the calculated r-count exceeds the r-table (0.361), and the p-value is less than 0.05. Therefore, these results demonstrate that all statement items in the perception variable are considered valid.

2. Reliability Test

A reliability test was conducted on the validated perception questionnaire. In this study, the reliability test assessment was carried out using Cronbach's Alpha (Wardani, 2023).

Table 2 Interpretation of Cronbach's Alpha Values

Cronbach's Alpha Values	Description
0.70 – 0.90	High Reliable
0.50 – 0.70	Moderate Reliable
< 0.50	Low Reliable

The reliability test results on the perception questionnaire are presented in the following table. The results of the reliability test on the perception questionnaire showed a Cronbach's Alpha value of 0.752, which means it is highly reliable.

Table 3 Interpretation of Cronbach's Alpha Values

Variable	Cronbach's Alpha Values	Description
Perception	0.752	High Reliable

Table 3 shows the Cronbach's Alpha values for the perception variable in the range of 0.70 – 0.90. Thus, the perception questionnaire is highly reliable.

3. Research Variables Characteristics

This section will present the data from respondents' responses. By depicting respondent data, the researcher can understand the condition of each variable being studied. The variables in this study will be classified using a frequency distribution with equal intervals. The first step is to sum each respondent's data results for each variable and then create categories for the questionnaire data results. The research data is divided into 3 categories: low, medium, and high. Next, determine the minimum value, maximum value, and interval range using the following formulas:

a. Maximum value = highest score x number of statements

b. Minimum value = lowest score x number of statements

c. Interval = maximum value – minimum value

d. Interval range = interval result ÷ number of categories

For the perception variable, the questionnaire is represented by 11 statements consisting of 5 positive statements (numbers 1, 2, 5, 8, 11) with values 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree, and 6 negative statements (numbers 3, 4, 6, 7, 9, 10) with values 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree. Next, the minimum, maximum, and interval range values are calculated.

Table 4 Respondents' Responses to Perception Variables Before and After CBIA Intervention in the Treatment Group

Perception	Pretest		Posttest	
	n	%	n	%
Low	0	0	0	0
Medium	4	20	0	0
High	16	80	20	100
Total	**20**	**100**	**20**	**100**

Table 4 shows that before the CBIA intervention, the respondents' perceptions were mainly in the high category, with 16 respondents (80%) and 4 respondents (20%) in the moderate category. After the intervention, all respondents' perceptions were in the high category.

4. Classical Assumption Test

The next step after obtaining research data is to analyze the research data. The first step is the classical assumption test as a normality test. The first normality test was conducted before the paired comparison analysis. This normality test was performed on the pretest and posttest data in the treatment group. The normality test used the Shapiro-Wilk test because the sample size was small (20 people in each group). The table below presents the normality test results for the pretest and posttest data in the treatment group.

Table 5 Normality Test of Pretest and Posttest Data in the Treatment Group

Variable	Type of Data	p-value (Saphiro Wilk Test)
Perception	Pretest	0.463
	Posttest	0.041

Based on the results of the normality test, it can be seen that the p-value for the pretest data is 0.463 and the p-value for the posttest data is 0.041. Since one of the data sets has a p-value < 0.05, it can be concluded that the data on the perception variable is abnormally distributed.

5. Statistical Analysis

After performing the classical assumption tests, the next step is to conduct hypothesis testing, namely paired comparison analysis. The Wilcoxon test was chosen because the data are abnormally distributed. Paired comparison analysis is used to compare whether there are differences (effects) before and after the treatment in the treatment group (CBIA intervention). The research results to determine whether there is a difference in perception before and after the CBIA intervention are presented in the following table.

Table 6 Differences in Values Before and After CBIA Intervention on Community Perception

Test Statistics[a]

	after_CBIA - before_CBIA
Z	-3.926[b]
Asymp. Sig. (2-tailed)	<,001

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Table 6 shows that after conducting the Wilcoxon test on the perception variable, a p-value < 0.001 was obtained. It means the CBIA intervention affects the community's perception of gotu kola utilization.

6. Perception of the Community Before CBIA Intervention

The research data found that before being given the CBIA method intervention, 80% of respondents had perceptions in the high category, and 20% of respondents had perceptions in the moderate category. The age range of respondents is mostly between 41 and 50 years, so most respondents have often consumed traditional medicine for

health maintenance. However, its composition is not from gotu kola. Most respondents also know gotu kola because it grows wild in the yards or fields in Mojorejo Village. People with experience and knowledge will form perceptions due to their interpretation of stimuli (Qiong, 2017; Brügger et al., 2021). Culture also significantly influences perceptions starting from the stages of selection, organization, and interpretation (Qiong, 2017). Although 80% of the respondents' perceptions in the high category, there are still several indicators in the perception of gotu kola utilization that need to be improved such as gotu kola cannot provide health effects just by drinking it once but requires regular consumption over a specific period, gotu kola can grow not only in Indonesia but also in other tropical and subtropical countries, gotu kola can be consumed in fresh plant form, but it can also be in dried form or as a potion. Gotu kola is a type of herbaceous plant.

7. Perception of the Community After CBIA Intervention

The research results also produced data on respondents' perceptions after being given the CBIA method intervention, showing that all respondents' perceptions were in the high category. The process of receiving stimuli varies between individuals according to each individual's internal and external factors—differences in understanding result in differences in perception formation (Maba, 2017). The stimulus given to the respondents is the CBIA method, which is interactive, promoting self-directed learning, providing knowledge, skills, attitudes, and critical behavior, encouraging active information-seeking behavior, and utilizing forums in the community (Ministry of Health Republic of Indonesia, 2020). From the posttest data obtained, it can be interpreted that after providing stimuli in the form of CBIA method interventions conducted twice, all respondents had a good perception of gotu kola, starting from the identification of the plant, its health benefits, as well as perceptions related to how to utilize gotu kola. With a good perception of the use of gotu kola, the community is expected to be willing to utilize it for health maintenance.

8. Effectiveness of Community Based Interactive Approach Method On Community Perception In Utilizing Gotu Kola

In the perception variable, it was found that respondents' perceptions after being given the CBIA method intervention showed an increase. Statistical analysis results indicated that providing the CBIA method intervention affected public perception with a p-value of < 0.001. It is in line with previous research conducted by Herawati et al. (2021) titled "The Effect of Javanese Language Videos with a Community Based Interactive Approach Method as an Educational Instrument for Knowledge, Perception, and Adherence amongst Tuberculosis Patients" which produced data that using Javanese language videos (Ngoko) with the CBIA method can change patients' perceptions of Tuberculosis in the domains of timeline, personal control, disease coherence, and emotional representation (p-value < 0.05), but cannot change the domains of consequences, treatment control, and timeline cycles (p-value > 0.05). When people receive numerous stimuli, they only pay attention to the stimuli

they recognize or are interested in through selective perception (Qiong, 2017). It illustrates that respondents in the treatment group paid optimal attention to the stimuli provided using the CBIA method, potentially changing their perceptions regarding the use of gotu kola.

E. CONCLUSIONS

Before implementing the CBIA method, the respondents' perceptions were mainly categorized as high (80%), and respondents' perceptions after the CBIA method increased to a high category. The statistical analysis results show a p-value on the perception variable before and after the CBIA method intervention of < 0.001. The CBIA method effectively improves the community's perception in utilizing gotu kola in Mojorejo Village, Batu City. Related government agencies can make efforts to enhance the community's perception of using medicinal plants, which can be conducted periodically with a broader target and a more diverse type of medicinal plants. CBIA activities can also be continued to the community of Mojorejo Village in Batu City, focusing on the downstream utilization of gotu kola products, so that utilization of gotu kola can improve the community's health and enhance the economy of the people.

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