



SEKAA TERUNA TERUNI AS AN AGENT OF CHANGE (AoC) DEVELOPMENT OF LOLOH CEMCEM AS A TRADITIONAL MEDICINE

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ABSTRACT

The development of phytopharmaceuticals aims to increase the use of traditional medicine through an evidence-based medicine (EBM) approach and enhance clinical and community acceptance. This effort cannot be separated from the role and attitudes of adolescents, such as those in the Sekaa Teruna Teruni (STT) group, who have a strong belief in traditional medicine. STT plays a vital role as Agents of Change (AoC) for traditional medicine unique to Penglipuran Traditional Village, particularly loloh cemcem. Currently, information about loloh cemcem is provided conventionally and is not based on EBM for residents and tourists, highlighting the need for technological innovation in promoting this traditional remedy. This study aims to assess the effectiveness of e-booklets as an educational medium to enhance the knowledge of STT adolescents regarding loloh cemcem and to empower them as Agents of Change in promoting its use. This quantitative descriptive study employs a quasi-experimental one-group pretest-posttest design and was conducted in April-May 2024. The sample included STT members from Penglipuran Traditional Village, selected through purposive sampling based on specific inclusion and exclusion criteria. Inclusion criteria included residency in Penglipuran Traditional Village, active and passive English proficiency, ability to use electronic media and the internet, and obtaining a pretest score of ≥ 80 points. Exclusion criteria included respondents who could not be reached for the posttest or were unwilling to dedicate time to the AoC loloh cemcem initiative. Data were collected through a validated and reliable knowledge questionnaire with 10 items, and e-booklets were used as educational media. Analysis using SPSS 18 and the Wilcoxon test showed a significant increase in knowledge after the provision of e-booklets ($p = 0.001$). These results suggest that e-booklets effectively enhance STT adolescents' knowledge, supporting them as key sources of information and promoters of loloh cemcem as a traditional medicine.

Keywords: agent of change; e-booklet; loloh cemcem

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INTRODUCTION

Penglipuran Traditional Village is one of the Bali Aga Villages located in Kubu Village, Bangli District, Bangli Regency, Bali. Bali Aga Village is a mountainous area inhabited by minority ethnic groups (Zellini et al., n.d.). In Penglipuran Traditional Village, a home industry has developed that provides food and drinks typical of Penglipuran Traditional Village. One of them is loloh cemcem, a traditional Balinese herbal drink. Loloh cemcem has a combination of sour, sweet, salty, and slightly bitter flavors. The sour taste comes from tamarind fruit, while the sweet and salty tastes are obtained from sugar and salt. The bitter taste comes from cemcem leaves, which are also known as klocing leaves and are the basic ingredient of this drink (Aryasa et al., 2021). People are used to drinking loloh cemcem as a daily drink to maintain stamina, improve digestion, refresh the body, and increase appetite. People believe that loloh cemcem is a very good drink to consume because it can cure internal diseases such as internal heat, chapped lips (jampi) and facilitate defecation (BAB), which uses natural ingredients obtained from nature, loloh cemcem is not dangerous to consume

(Sutana, 2020). Although it has been consumed by the Balinese people and has become a souvenir for local and foreign tourists until now loloh cemcem has not been clinically tested.

Herbal medicine can be developed into standardized herbal medicine (OHT) or phytopharmaceuticals with evidence from non-clinical data (for OHT) and clinical data (for phytopharmaceuticals) (Adiyasa et al., 2021). The development of phytopharmaceuticals aims to increase the use of traditional medicine through an evidence-based medicine approach to improve clinical and community acceptance. The development of phytopharmaceuticals cannot be separated from the role and attitude of adolescents. This is proven by the results of Basic Health Research (Kemenkes RI, 2010), It was found that the prevalence of Indonesian people over 15 years who had consumed traditional medicine, especially herbal medicine, was 59.12% (Kemenkes RI, 2010). The skills of processing traditional medicine for teenagers in Bangli Regency have good value (Rasna et al., 2014). Teenagers in Bangli Regency, one of which is in Penglipuran Traditional Village, have a strong belief in traditional medicine. This is because teenagers are accustomed to participating in preserving culture, including traditional medicine. Teenagers in Penglipuran Village formed a group called Sekaa Teruna Teruni (STT). The strong role of STT can make them Agents of Change (AoC) regarding Traditional Medicine typical of Penglipuran Traditional Village, namely loloh cemcem. This study aims to develop and evaluate the role of Sekaa Teruna Teruni (STT) as an Agent of Change (AoC) in promoting loloh cemcem as a traditional medicine in Penglipuran Traditional Village. Information on loloh cemcem is currently provided conventionally and is not based on evidence-based medicine (EBM) for residents and tourists, necessitating the creation of new innovations that incorporate technology. With the current background, all information can be accessed through electronic devices. Therefore, this study aims to empower STT as AoC by utilizing technology-based information media, such as engaging e-booklets, to help STT in Penglipuran Village become an effective source of information and a tool for promoting loloh cemcem.

METHOD

This research is a quantitative descriptive study with a quasi-experimental One-Group Pretest-Posttest Design. Respondents will be given a pretest and posttest, then the results will be compared to conclude understanding. The sample of this study was STT of Penglipuran Traditional Village with a purposive sampling technique. The inclusion criteria were residing in Penglipuran Traditional Village, being able to speak English actively and passively, being able to use electronic media and the internet, and STT who obtained a pretest score of ≥ 80 points. The exclusion criteria were respondents who could not be contacted again during the posttest and were unwilling to divide their time into AoC loloh cemcem. This activity aims to increase the understanding of STTs regarding traditional medicinal drinks typical of the Penglipuran Traditional Village, namely Loloh Cemcem. In this study, only 20 people met the inclusion criteria so all of them were used as research samples. This research activity was carried out for 2 months from April to May 2024.

The knowledge questionnaire was prepared by the researcher consisting of 10 questions on the topic of how to make, benefits, rules of use, storage of cemcem loloh, and the chemical content of cemcem leaves. The e-booklet educational media was created using the flipbook and Canva applications totaling 14 pages with Indonesian and English versions. STT can access the e-booklet media on the link that has been shared by the researcher. Before being used as a research instrument, validity and reliability tests were carried out on 20 respondents so that the questions were valid if the calculated r value was ≥ 0.444 . Data analysis in this study used univariate analysis and bivariate analysis. The Wilcoxon test was used, namely a

non-parametric test to determine the difference in STT's level of knowledge before and after e-booklet education.

RESULT

Characteristics of the participants

The characteristics of STT as AoC are grouped based on gender, age, and last education, which can be seen in Table 1.

Tabel 1.
Respondents characteristics (n = 20)

Characteristic	Categories	f	%
Gender	Female	12	60
	Male	8	40
Pendidikan	SMP	13	65
	SMA	7	35
Age	13 years	4	20
	14 years	5	25
	15 years	4	20
	16 years	2	10
	17 years	5	25

This study used 20 AoC candidates as respondents with the characteristics of respondents that can be seen in Table 1 that the number of female respondents is greater than male respondents with a percentage of 60%. Based on the respondents' last education, the largest number with the last education is junior high school as many as 13 people (65%). Based on the age of the respondents, most are at the age of 14 years, namely 5 people (25%)

Educational Materials

Sekaa Teruna Teruni (STT) as an Agent of Change (AoC) has Educational Materials followed 3 parts, namely the introductory phase, learning phase, and evaluation phase. The introduction and evaluation phase was carried out in the Penglipuran traditional village, while the learning phase was carried out over 3 weeks which was carried out online via WhatsApp.

Table 2.
Educational Materials for AoC (n = 20)

No	Activity	Process	Result
1	Building commitment	Coordinating with the Head of the Penglipuran Traditional Village and the Head of the Sekaa Teruna Teruni (STT) and STT Putra Yadnya of the Penglipuran Traditional Village	A positive response in the form of support from the Bendesa, the head of the Penglipuran Traditional Village STT and the Putra Yadnya STT who will become the AoC of Loloh Cemcem
2	Phase I	1. Establish communication and familiarity with AoC candidates 2. Hold a pretest 3. Hold phase I briefing with e-booklet	Agreement from the selected AoC to participate in 1 hour of triggering in the 2nd and 3rd weeks online via WA Group, and evaluation and posttest in the 4th week offline
3	Phase II	1. Implementation of triggering via online (WA group) with e-booklet 2. AoC reviewed the e-booklet of last week's meeting in English	AoC is very enthusiastic because he got information about the English version of loloh cemcem
4	Phase III	1. Implementation of triggering via online (WA group) with material Antioxidant Loloh Cemcem 2. Discussion session	AoC can determine the antioxidant content in cemcem loloh, along with scientific evidence
5	Phase IV	Monitoring and Evaluation	AoC knowledge was measured twice, namely before and after triggering with a pre-post test.

Overview of the Level of Knowledge of Sekaa Teruna Teruni about Loloh Cemcem

In this study, respondents were given a pretest before being given an intervention and a posttest after being given an intervention. The pretest was conducted on 42 respondents who were dominated by a level of knowledge in the sufficient category, namely 22 people (52%). Of the 42 STT people, 20 respondents were selected with a score of 80 points and would then be given an e-booklet intervention. There was an increase in knowledge after being given an intervention, namely with an average of 93 points, where the 20 respondents were ready to become Agents of Change. This shows that society still needs media as a means to increase their knowledge, especially about traditional medicine.

Table 3.
Level of Knowledge of Sekaa Teruna Teruni about Loloh Cemcem (n=42)

Criteria Knowledge	Pretest	
	f	%
Good	20	48
Enough	22	52
Less	0	0

The effect of e-booklet intervention in increasing AoC knowledge about Loloh Cemcem

In this study, to see the effect of e-booklet intervention on AoC with the Wilcoxon test. The results of the Wilcoxon Test can be seen in Table 5.

Table 5.
Differences in AoC Knowledge Before and After Being Given the E-booklet

	Posttest -Pretest AoC
Z	-3,361 ^b
Asymp. Sig. (2-tailed)	0,001

DISCUSSION

In this study, there were 12 female respondents, because female adolescents have a positive response and awareness of health. In many cultures, women, especially female adolescents, are more often involved in the role of family health care, including the use and knowledge of traditional medicine. The education of STT adolescents is junior high school (65%), this is likely because junior high school students have more time to participate in this activity compared to high school or college students. Age has an impact on the development of a person's comprehension and mindset. As age increases, mental development also increases. As a person's knowledge also tends to increase (Adiyasa et al., 2021). This is in line with research Dewi (2019) which found that the age of respondents who used traditional medicine was in the early adult category (18-40 years) as many as 79%. The majority of respondents are of productive age, which makes a person's comprehension and mindset increasingly developed, making it easier to dig up information about traditional medicine (Pane et al., 2021).

In this study, digital media is used as one of the instruments in conveying information. The use of media is adjusted to the purpose and information to be conveyed. One type of media that can be used in learning is printed media, such as booklets. Booklets have the advantage of being able to be studied at any time, are attractively designed, allow for independent learning, can convey more information, and an attractive booklet layout can increase the reader's interest in understanding it. Other studies have shown that booklets can be used as one of the learning media because they contain various images (Dewi et al., 2022). The e-booklet covers an introduction to loloh cemcem, explores the traditional knowledge involved in its

preparation, details its ingredients and their benefits, provides instructions for making it, suggests dosage and storage guidelines, and highlights loloh cemcem's role as an antioxidant. Antioxidants are compounds that help prevent oxidation reactions and neutralize free radicals. Excessive oxidation and free radicals that accumulate in the body cause oxidative stress conditions that trigger health problems. Cemcem leaves are known by various names, such as klocing leaves in the Penglipuran area, forest kedondong leaves in Indonesia, and kecemcem leaves. Cemcem leaves have the potential as a natural antioxidant product because they contain bioactive compounds such as steroids, flavonoids, and triterpenoids (Aryasa et al., 2021). Flavonoids in cemcem leaves function as antibacterials by damaging the permeability of cell walls, microsomes, and lysosomes. In addition, bioactive components contained in cemcem leaves such as steroids, flavonoids, and triterpenoids can potentially act as antioxidants (Ariantari cemcem ethnopharmacy). According to the beliefs of the Penglipuran community, loloh cemcem is believed to be able to cure internal heat. This is due to the phytochemical content in cemcem leaves, namely flavonoid compounds, which function as antibiotics by disrupting the function of microorganism cells such as bacteria or viruses (Pebiana et al., 2021).

Spondias pinnata (*S. pinnata*) has shown potential in treating a variety of human health issues. The chloroform extract of *S. pinnata* demonstrates strong anthelmintic activity against earthworms, surpassing other extracts in effectiveness against parasitic worm infections. Isolates of *S. pinnata* exhibit antimicrobial, anti-diabetic, antioxidant, and free radical scavenging properties. The bark extract of *S. pinnata* has been found to have anti-diabetic effects in mice with streptozotocin-induced hyperglycemia at a standard medicinal dosage of 1 g/kg body weight. Orally administered doses of 200 and 400 mg/kg of the ethyl alcohol extract from *S. pinnata* bark show an antipyretic effect. Additionally, leaf extracts from *S. pinnata* possess antiviral and antimicrobial properties. The phenolic compounds in the methanol extract of *S. pinnata* leaves are primarily responsible for its free radical scavenging action (S. Swathi & K. Lakshman, 2022). The pain-relieving properties of ethanolic extracts from *Spondias pinnata* were assessed using acetic acid, formaldehyde testing, and a hot plate method. The ethyl alcohol extracts of *S. pinnata* showed concentration-dependent analgesic effects, similar to those of acetylsalicylic acid in both the acetic acid test and the second phase of the formaldehyde test. These findings support the traditional use of *S. pinnata*, particularly for its analgesic effects (Mondal et al., 2021).

Research conducted by Dewi et al, (2024) stated that there was a change in the level of knowledge after being given educational media in the form of an e-booklet about phytopharmaceuticals, namely before the intervention the level of knowledge was in the poor category (73.3%) and after the intervention the level of knowledge was in the good category (75%). Based on the study, it showed that knowledge in the treatment group before the intervention was 11.82% and increased to 15.85% after being given media intervention. Previous research by Khusnuddin dan Indarjo, (2020) supports this, by stating that e-booklets are suitable for use as educational media, as shown by a significant increase, namely 94.1%, from the test results before providing educational media of 84.1%. This study is also in line with research by Dewi et al, (2022) which states that there is an increase in knowledge about traditional medicine after being given an e-booklet. By presenting short and clear material so that it is easier to understand, especially about traditional medicine. According to Rasdianah et al, (2022), there was a difference in the level of knowledge before and after counseling and provision of brochures on the correct use of drugs in the community, which was known to have increased in the good category by 76% from the previous 3%.

From the calculation of the Wilcoxon Signed Ranks test using SPSS, the posttest-pretest results obtained an Asymp. Sig. (2-tailed) value of 0.001. These results indicate that there is a difference before and after the provision of e-booklets at the level of knowledge of 20 respondents. These results are in line with research by Zakiyah et al., (2020) which shows that delivering information through education, such as counseling on the benefits of natural ingredients as traditional medicine, proves that information from health promotion, print media, and electronic media has an impact on increasing individual knowledge. The more information a person obtains, the broader and more developed their knowledge will be (Budiman & Riyanto., 2014). Research by Gunarti et al, (2023) which conducted counseling related to the benefits of herbal medicine for health in the community and students received a positive response of 83.3%. Counseling was carried out with the aim of increasing awareness and acceptance of herbal medicine as a traditional Indonesian medicine, so socialization is needed for the nation's young generation in order to create agents of change through students, especially in Karawang Regency. According to Nurhalimah et al, (2022) students have a role in increasing critical awareness in society. Through various activities such as public discussions, seminars, and scientific publications, students can provide education to the public about important issues and encourage their participation in the change process. The younger generation must become agents of change by developing critical analysis skills, innovation, and creativity to solve complex problems. From the findings of this study and several related studies, it can be interpreted that providing information through digital media currently plays a very important role in the level of knowledge. It is hoped that this can be a provision for teenagers as a transfer of knowledge to peers, as well as acting as agents of change in the family to implement a healthy lifestyle. The younger generation can also be agents of change in preserving traditional medicine that has become a hereditary culture in Indonesia.

CONCLUSION

The 42 STTs, 20 people had a good level of knowledge with a baseline value of 80 points, so they were selected as Agents of Change. Based on the results of the study, the Asymp. Sig. (2-tailed) value was 0.001. These results indicate that there is a difference in the provision of digital-based information on the level of knowledge of Sekaa Teruni about loloh cemcem in Penglipuran Tourism Village.

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