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Research Article

Women's Empowerment Through Community-Based Non-Formal Education: Evidence from a Family Medicinal Plants Program

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ABSTRACT

Purpose of the study: This study aims to describe a community-based health education model for women through the Family Medicinal Plants (TOGA) program in Bhuana Jaya Village. The program was developed to improve women's knowledge, skills, and awareness in utilizing medicinal plants as an alternative health resource, while promoting family health and strengthening community self-reliance through active participation and empowerment activities.

Methodology: This study employed a qualitative research approach conducted in Bhuana Jaya Village, Tenggarong Seberang District, Kutai Kartanegara Regency. Data were collected through observation, interviews, and document analysis. Informants included the head of the dasawisma group, the village head, the neighborhood head, and community members involved in the TOGA program. Data analysis followed the Miles and Huberman model, while data validity was ensured through source and technique triangulation.

Main Findings: The findings show that the TOGA program was implemented through planning, implementation, and evaluation stages. Program activities included needs identification, training, counseling, mentoring, and monitoring. The program successfully increased women's knowledge and skills in cultivating and utilizing medicinal plants, strengthened community participation, enhanced empowerment, and encouraged family independence in maintaining health through the use of TOGA.

Novelty/Originality of this study: This study contributes to the development of community-based health education by presenting a practical model that integrates women's empowerment, local resources, and family health promotion through the TOGA program. The study highlights how dasawisma-based participation can strengthen community engagement and support sustainable health education practices, thereby enriching knowledge on community empowerment and health self-reliance at the village level.

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1. INTRODUCTION

Health is an important aspect in determining a person's quality of life andpublic welfare. One way to maintain health is by consuming plants that have medicinal properties. These plants are known as TOGA (family medicinal plants). TOGA (family medicinal plants) are medicinal plants cultivated by the community and have many benefits, such as natural remedies commonly used as living pharmacies. TOGA (family medicinal plants) have various benefits in improving health and treating various diseases [1]. This plant is not only used as a herbal plant by the community, but is also usually used by the community as a decoration for yards or gardens [2]. Based on these findings, TOGA (family medicinal plants) can not only be used as yard decoration, but also have many benefits such as being a living pharmacy or natural medicine for the family.

In today's modern era, Many people are starting to switch to modern medicines that are more practical and easily available. Unfortunately, this has led to a decline in knowledge and skills in recognizing and utilizing medicinal plants around us [3]. This habit has made natural remedies rarely used, even though the home environment has great potential as a source of alternative medicine through the use of Family Medicinal Plants (TOGA). However, public understanding of the types of TOGA plants, their benefits, and how to process them is still relatively low. In addition, the lack of knowledge and skills in utilizing the home yard as a medium for planting TOGA is also a major obstacle. The lack of TOGA utilization is caused by the public's still low understanding of how to care for and utilize the results of these medicinal plants in everyday life [4]. Thus, the potential of TOGA as a family health solution cannot be utilized optimally.In many regions, especially rural areas, home gardens are typically used by families to meet their daily food needs, for example by growing vegetables, fruits, and other edible plants. Therefore, home gardens are often viewed and utilized as living kitchens, which can help families meet their household food needs independently [5]. Therefore, community knowledge and awareness are needed to utilize home gardens, so that they can function not only as living kitchens but also as living pharmacies through the TOGA program.

Increasing public knowledge and awareness is the first step to maximizing the use of home gardens, not only as a source of family food but also as a living pharmacy through the development of traditional herbal medicine (TOGA). Efforts to increase public knowledge and awareness can be implemented through education. This can be achieved through educational processes, as educational activities have been shown to increase individual understanding and awareness of health behaviors [6]. Education also plays a role as a means of improving the quality and capacity of society through the development of knowledge, skills, and good attitudes [7]. Education is a means of shaping and developing the human personality as a whole, including physical, spiritual, and moral aspects [8]. Education does not merely function as a means of imparting knowledge, but also as a process of forming a better quality of life, through the development of independent individuals, possessing good knowledge, and being able to play an active role in society [9]. Education is essentially a process designed to help individuals and communities develop their potential. Through education, knowledge and skills are gradually and continuously improved, enabling individuals not only to understand various information but also to apply it in their daily lives [10].

Education about the use of medicinal plants should not only be for schoolchildren; it should also involve adults who can play a direct role in managing their home gardens. Education about the use of medicinal plants should be provided not only to schoolchildren but also to adults who play a role in managing their home gardens. Through outreach and educational activities, the community can increase their knowledge of how to optimally manage, use, and cultivate family medicinal plants [11]. Therefore, non-formal education is considered to have a strategic role as a form of adult education in increasing knowledge, skills, and public awareness of the sustainable use of traditional medicine.

In everyday life, adults play a key role in maintaining family health, particularly in selecting treatment methods. One approach is to utilize Family Medicinal Plants (TOGA), which can be used independently at home [12]. However, there are still many people who do not understand the use of plants.Family Medicine (TOGA), thus requiring education tailored to the conditions and needs of adults. Relevant education to address the low level of public understanding of the use of Family Medicinal Plants (TOGA) is designed to be flexible, accessible, and tailored to the needs and learning experiences of adults. Providing education about TOGA has been proven to increase public understanding of the types, benefits, and how to utilize family medicinal plants in everyday life. [13] Non-formal education is a learning platform accessible to all levels of society due to its flexibility. Furthermore, Non-formal education also serves as a platform for developing potential by emphasizing the mastery of knowledge and the development of each individual's abilities [14]. Thus, non-formal education plays a crucial role as a learning platform that can be implemented in accordance with existing community conditions, increasing community knowledge, awareness, and skills in utilizing traditional medicine for family health.

The TOGA (Family Medicinal Plants) program in Bhuana Jaya Village was implemented as a strategic step to address the community's limited knowledge and skills in managing medicinal plants in the surrounding area. By utilizing the village's extensive yard space, this program successfully optimized the village's potential as a growing medium for Family Medicinal Plants (TOGA). Utilizing yard space through TOGA cultivation is a

form of community empowerment that can optimize the potential of the home environment while supporting family health independence [15]. The program implementation shows an increase in community knowledge, especially women, regarding the types, benefits, and processing of traditional medicinal plants. In addition to focusing on health aspects, this program also integrates educational processes that take place directly in the community through outreach activities, training, and practical activities of planting and processing traditional medicinal plants. The active involvement of women in every stage of the activity is a crucial factor in the success of this program. Therefore, women's community-based health education has proven to be an effective approach in implementing the traditional medicinal plant program in Bhuana Jaya Village, because it not only increases community knowledge but also encourages family independence in maintaining health through the use of traditional medicinal plants.

2. RESEARCH METHOD

This research is entitledA community-based health education model for women through the toga program in Bhuana Jaya Village. This research was conducted in RT 20, Bhuana Jaya Village, Tenggarong Seberang District, Kutai Kartanegara Regency, which is an active area in the implementation of the TOGA program. This study used a qualitative method with the aim of examining in depth the community-based health education model for women through the toga program in Bhuana Jaya Village.

Data collection techniques in this study were carried out through observation, interviews, and document studies. Observations were conducted directly to observe the process of the community-based health education model for women through the toga program in Bhuana Jaya village. Interviews were conducted to gather in-depth information about the process of the community-based health education model for women through the toga program in Bhuana Jaya village. The informants interviewed were the heads of the dasawisma, one of the women's communities in the village.village head, the head of RT. 20, and the community, especially women, who participated in the program. Document studies were used to supplement data in the form of activity photos and field notes obtained from informants.

This study employed the Miles and Huberman model of data analysis, which includes data reduction, data presentation, and conclusion drawing. Data obtained through fieldwork was first selected and grouped according to the research focus. The data was then described in descriptive form, followed by analysis in the data presentation, which will form the basis for drawing conclusions. Data validity was tested using source triangulation and technical triangulation. Technical triangulation was implemented by comparing data from interviews, observations, and document studies. Source triangulation was conducted by comparing research findings obtained from various informants.

3. RESULTS AND DISCUSSION

The community-based health education program for women through the TOGA Program in Bhuana Jaya Village is a model of community empowerment designed and implemented with women as the primary subjects. Education is a crucial aspect needed to improve women's capacity and abilities [16]. This program aims to increase women's knowledge, skills, and awareness in utilizing family medicinal plants to maintain and improve the health of their families and communities. Empowering women through the TOGA program can increase knowledge and skills in managing family medicinal plants, thereby supporting efforts to improve family and community health [17]. Through active involvement in every activity, women are guided to play a role in managing local potential in their surroundings independently and sustainably. Women need to be actively involved in every stage of empowerment activities, from decision-making to the utilization of program results, they can contribute to the sustainable management of local potential [18]. In its implementation, this program not only focuses on the use of TOGA as a source of traditional medicine, but also emphasizes the process of increasing women's capacity through learning activities, training, and mentoring. This process is part of empowerment-based education that aims to increase women's abilities and confidence in carrying out their roles as health agents, both within the family and community environment. Therefore, this program can be seen as a form of education that focuses on understanding the role of women so that they have the ability and independence to actively participate in community health development efforts in Bhuana Jaya Village.

In the implementation of education, there are stages that are structured and implemented in an orderly manner. These stages include the planning stage, the implementation stage, and the evaluation stage, all part of the educational process[19]Therefore, with the planning, implementation, and evaluation stages, the educational process can be carried out in a focused manner and in accordance with the planned objectives.

3.1 Program planning stages

The planning stage in education is the initial phase which functions as the basis for direction and foundation in implementing the educational process. Planning can be known as the initial step in a process that is

designed in a structured manner to produce maximum and satisfactory results [20]. Thus, carefully designed and structured planning becomes an important basis so that the entire educational process can take place in an orderly, effective manner and achieve the predetermined learning objectives.

In the program planning stage, an identification process is carried out as an initial step to identify and understand the learning needs required before designing and implementing learning activities. Needs analysis constitutes the preliminary stage of instructional planning, intended to identify learners' needs and learning conditions that serve as the foundation for program design and the implementation of educational activities [21]. In the learning planning process, the initial step is to clearly identify learning objectives and conditions, so that the plan can meet the needs of students according to the learning situation and conditions faced [22]. Therefore, program planning must be prepared carefully and in a structured manner so that the program objectives that have been prepared can be achieved through the implementation of programs that are relevant, effective, and in accordance with community needs.

Before implementing the TOGA program in Bhuana Jaya Village, the head of the dasawisma first conducted a simple survey and direct discussions from house to house in the RT 20 area. The door to door method allows for direct interaction with the community so that it can be adapted to the social conditions and needs of the local community[23]This activity aims to identify community needs for the types of plants needed, whether for daily consumption, use as traditional medicine, or cultivation and resale as a source of income. This ensures that the program is tailored to community needs and can provide sustainable benefits by empowering the community, especially all members of the dasawisma (village community unit) in RT 20 of Bhuana Jaya Village.

Then, regarding supporting facilities, the dasawisma head and other involved parties ensure the availability of supporting facilities, such as funds for training, plant seeds, fertilizer, and planting tools needed by the community. Supporting facilities such as funds for training, plant seeds, fertilizer, and planting tools are crucial factors in supporting the success of the community empowerment process. The availability of adequate facilities and infrastructure can help communities improve their knowledge, skills, and actively participate in empowerment activities [24]. Furthermore, in the community education process, support for practical media facilities also plays a role in increasing the effectiveness of knowledge and skills transfer to the community [25]. Empowerment programs accompanied by the provision of facilities can improve the community's ability to independently manage local potential [26].

The stages of identifying community needs in TOGA program planning are essential for recognizing and determining existing needs so that activities are targeted. Program identification is carried out by organizers through an assessment of information related to emerging program needs in the community [27]. Identification is carried out through several related stages and is structured in an orderly manner for ease of understanding. The identification process is carried out through systematic and interrelated stages to gain a comprehensive understanding of the problem being studied [28]. This activity begins with identifying various problems that arise in the field, followed by an analysis to determine the actual conditions. The results of this process are then used as a basis for determining the priority of learning objectives that are important to achieve.

The results of the document study play a crucial role in strengthening the decision-making process. Decision-making is carried out through information gathering, identifying various alternative options, and drawing conclusions based on the information obtained. This allows the collected data to serve as a valuable basis for strengthening the decision [29]. This data serves as a foundation that can help ensure that every decision made is not arbitrary, but is based on precise, accurate, and scientifically proven information. Therefore, the needs identification stage in TOGA program planning is crucial to ensuring that activities are on target. Through a structured process, from problem identification to prioritizing objectives, supported by data from document studies, appropriate, focused decisions can be generated and the program can be implemented according to plan.

The location was selected based on the identification of community needs to improve health knowledge and skills, particularly in the use of Family Medicinal Plants (TOGA), as well as the level of women's participation in health activities in the area. Location selection is crucial because a strategic location is required to serve as a center for cultivating Family Medicinal Plants (TOGA) [30]. Selecting a strategic location, aligned with community needs for the implementation of the TOGA program, can contribute to the program's success. Selecting a location that aligns with the needs and characteristics of the community is an important aspect of program implementation, as it can support the achievement of objectives and enhance the overall success of program implementation [31].

3.2 Program Implementation Stages

The implementation stage is the stage carried out after designing a plan for a program or activity, which focuses on implementing the previously created plan. The implementation stage is the program implementation process carried out after the plan is prepared, with the aim of implementing activities in a structured manner so that the set targets can be achieved effectively [32]. The Family Medicinal Plants Program (TOGA) based on the Dasa Wisma group is a concrete form of community empowerment efforts, through cooperation carried out as a

group, Dasa Wisma members not only act as beneficiaries, but also as key actors who contribute to increasing family health independence and strengthening community capacity in utilizing local resources [33].

Based on data obtained during the program implementation phase, training began. This training aimed to improve community knowledge and skills to determine the success of the development of Family Medicinal Plants (TOGA). Training and education on Family Medicinal Plants (TOGA) can improve community knowledge and skills in the utilization and development of medicinal plants, thereby supporting the success of the family health empowerment program [34]. Education is a process that is carried out deliberately and planned to produce behavioral changes in individuals, with the aim of developing knowledge, skills, and good habits through teaching and training activities., and research[35] Based on the results of the research conducted, the training activities in the TOGA program in Bhuana Jaya Village not only function as a means of conveying information, but also become a learning process that is able to improve the community's ability to utilize family medicinal plants independently. Through the training provided, Dasa Wisma members gained knowledge about planting techniques, maintenance, and utilization of TOGA harvests that can be directly applied in everyday life. The increase in knowledge and skills shows that training is an important part of the Community Education process, because it is able to encourage changes in community behavior from previously not understanding the benefits of TOGA to being more active in cultivating and utilizing it to maintain family health. Thus, the training carried out in this TOGA program not only supports the technical success of the program, but can also contribute to shaping community independence through the process of Women's Community-based Health Education.

At the beginning of the activity, training begins. Training can be understood as a learning process carried out over a short period of time and aimed at helping participants develop the abilities and skills needed to carry out an activity or job more effectively [36]. This activity was attended by all members of Dasa Wisma in RT. 20 Bhuana Jaya Village. In this training activity, the community was taught how to plant seeds properly, then how to control pests on plants, and how to utilize the harvest. The training was carried out using demonstration methods and direct practice so that participants not only gained knowledge, but also were able to practice the skills learned. Training activities are conducted by directly involving members in practice so that residents can understand each stage of the activity while developing skills that can be applied in real life [37]. From a community education perspective, training is a learning process aimed at improving individual abilities through structured learning experiences. Therefore, training in the TOGA program is an effective learning tool in improving the knowledge and skills of Dasawisma members. Through demonstration methods and direct practice, participants can understand and apply TOGA planting, care, and utilization techniques independently in their daily lives.

In the implementation of the TOGA program, training activities not only focus on improving community skills, but also become part of the community learning process carried out through extension activities. In addition to training, this implementation activity is also carried out with counseling.Extension is a non-formal educational process that aims to convey information and increase community knowledge and skills [38]. Extension is a planned activity tailored to the conditions and needs of the target audience in the field. The use of diverse, engaging, and interactive media is one strategy to increase the effectiveness of information delivery to the public, ensuring optimal learning objectives are achieved [39]. Extension is a non-formal educational process that is implemented in a planned and systematic manner aimed at the community with the aim of encouraging the ability, willingness, and independence in improving the welfare of families and the wider social life of the community. Within the context of non-formal education, extension is a form of community-based learning that aims to strengthen the knowledge, attitudes, and skills of individuals and groups. Community-based extension is an activity that involves the participation of community members in every stage of the extension process [38]. Thus, the initial phase of the TOGA development program is marked by training and outreach aimed at improving knowledge, skills, and active community participation. Through a community-based, non-formal education approach, these activities strengthen the capabilities of Dasa Wisma members, thus contributing to the program's success and sustainability.

In the next implementation, namely providing assistance, assistance is an important element in community empowerment because it is used to ensure that the program implementation is effective and according to objectives. Companions are a very important element because they play a strategic role as facilitators who assist the learning process, communicators who connect information, and dynamic agents who are able to mobilize community participation and enthusiasm in achieving program goals [40]. Mentoring is carried out to help village communities optimize their economic potential, in order to increase income and community welfare [41]. The implementation of Mentoring is carried out to help build cooperation between the facilitator and the community so that the empowerment program can run sustainably. Mentoring is carried out in every program implementation, starting from planting, maintenance, to utilization of results, thus encouraging active community participation and supporting the sustainability of program activities. The mentoring process carried out in Bhuana Jaya Village in the TOGA program involves several systematic and structured stages.

During the maintenance phase, the program regularly conducts field visits to monitor plant development, provide solutions to community challenges, and motivate women's groups to consistently care for

the plants they have planted. During this phase, discussions with residents were conducted to address various challenges encountered during the implementation of the program [42].

Then, at the utilization stage of the results, the mentoring staff teaches how to process TOGA plants into useful products, such as making traditional medicines, and other health products that can be consumed by themselves or sold to increase family income. Thus, the mentoring stage in the TOGA program is an important part of community empowerment, the existence of mentoring such as teaching how to utilize empty yard land, as well as utilizing TOGA harvests and how to process them, the community is expected to be able to practice the results of the mentoring independently, so as to ensure the implementation of the program runs effectively, as well as strengthen community participation, and guarantee the sustainability of activities through the strategic role of mentoring staff..

The final implementation of this program is to monitor the implementation of activities. This implementation stage is an important process in program management to ensure that each activity runs according to plan and achieves the predetermined results. Monitoring is a continuous process of monitoring program implementation to ensure its continuity and identify any ineffective or needing adjustments [43]. Monitoring is carried out to ensure that all program activities, from planting and maintenance to the utilization of medicinal plants, are carried out in accordance with predetermined objectives. Monitoring of the TOGA program in Bhuana Jaya Village is carried out routinely and in a planned manner by assistants, involving various parties directly involved in the program. At the beginning of the monitoring process, assistants go directly to residents' yards to observe and assess the condition of the planted plants, including ensuring whether their growth is proceeding normally or whether any problems are identified.such as pest infestations and errors in the applied maintenance methods. In addition to direct observations in the field, monitoring activities are also carried out through discussion forums with women's groups involved in the program [44]. where participants were given space to convey the extent of progress that had been achieved, obstacles that were still felt, and successes achieved during the program. The findings resulting from the entire monitoring process were then used as the basis for compiling recommendations and follow-up plans so that the TOGA program could continue to run sustainably and have a greater impact on the wider community. In the context of community education, monitoring plays a role as a form of mentoring and evaluation of the community's learning process in planting TOGA. Through monitoring, the community receives direction, improvements, and greater knowledge and skills related to the techniques for planting and utilizing family medicinal plants appropriately. Thus, monitoring not only functions to oversee program implementation, but also supports the community's learning process in managing and utilizing family medicinal plants (TOGA).so that the empowerment and education goals of planting TOGA can be achieved optimally.

Evaluation is an assessment process carried out systematically to identify various aspects of an activity, whether positive, negative, or a combination of both, so that it can provide a comprehensive picture of the results and effectiveness of the activities that have been carried out [45]. Therefore, the assessment of the success of a program in achieving the stated objectives can be done through the implementation of a systematic evaluation stage. The evaluation method used in this TOGA program is to collect data through interviews on how to manage TOGA plants, as well as how to utilize them and direct garden observations to review the extent to which the TOGA plants have developed. The data collected through interviews and observations are used to assess the extent of understanding and level of knowledge of members, and also to determine the success of the TOGA program that has been implemented in Bhuana Jaya village. The success of utilizing Family Medicinal Plants (TOGA) is highly dependent on the level of knowledge and understanding of the community regarding the benefits of each type of family medicinal plant, especially plants that have been proven to have efficacy based on research in the field [46].

In this study, the interview method was used as an evaluation technique to obtain more in-depth information regarding the research implementation and responses from the parties involved in the program. Through the interview process, individuals can explore data in greater detail and clarity, allowing for comprehensive evaluation activities and aligning with the predetermined research objectives. Interviews are a non-test evaluation tool conducted through conversation and question-and-answer sessions to obtain the necessary information, both directly and indirectly [47]. Thus, the interview method in this evaluation stage can be one of the tools to obtain data as evaluation material in the TOGA (Family Medicinal Plants) program in the RT 20 area of Bhuana Jaya village, in order to obtain more optimal and continuously improving program results.

This study also used the observation method in the evaluation stage. Observation is generally used to assess or evaluate various aspects of an activity [48]. Observation is a method of data collection carried out to obtain information to achieve the desired goals [49]. Observation is used as an evaluation technique to obtain direct data on activity implementation, field conditions, and individual activities during the program. Observation is the systematic, direct and continuous observation of human activity and the environmental conditions of the activity location to obtain the necessary facts or data [50]. Therefore, the observation method can be useful as a tool in collecting data in accordance with field facts and field conditions, so that it can be used as evaluation material for the sustainability of a program.

4. CONCLUSION

The conclusion of the research conducted is that the community-based health education model for women through the TOGA program in Bhuana Jaya Village is an effective form of non-formal education in increasing the knowledge, skills, and awareness of the community, particularly women, regarding the use of Family Medicinal Plants (TOGA). This program not only focuses on health aspects, but also serves as a means of community empowerment through the active involvement of women in every stage of the program, from planning, implementation, to evaluation. In the planning stage, needs identification activities conducted through simple surveys and direct discussions from house to house can help program implementers understand the real needs of the community. In addition, support for facilities and infrastructure such as plant seeds, fertilizers, planting tools, and training funds are supporting factors in the program's success in increasing community participation and skills. The program implementation stage is carried out through training, counseling, mentoring, and monitoring activities that are carried out continuously. These activities provide direct learning experiences to the community so that they can improve their abilities in planting, caring for, and utilizing TOGA for family health needs. Mentoring and monitoring are also important parts in maintaining the sustainability of the program because they help the community obtain direction, evaluation, and strengthening skills during the activity. Then, in the evaluation stage, the use of interview and observation methods provided an overview of the increasing community understanding of the benefits and management of TOGA. The evaluation results showed that the community began to develop awareness of utilizing their yards as living pharmacies and was able to apply the knowledge gained in their daily lives. Thus, the women's community-based TOGA program in Bhuana Jaya Village can be said to be successful as a model of community-based health education that not only improves family health knowledge but also encourages independence, active participation, and sustainable community empowerment. Furthermore, this study shows that community-based non-formal education has a strategic role in supporting public health development by utilizing local potential in the surrounding environment.

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AUTHOR CONTRIBUTIONS

G.E.T.A. conceived and conducted the study, collected and analyzed the data, and drafted the manuscript. M., S.W., and T.W. supervised the research process, validated the findings, provided critical revisions, and reviewed the manuscript. All authors read and approved the final manuscript.

CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

INFORMED CONSENT STATEMENT

Prior to participation, each subject was provided with a detailed explanation of the study’s objectives, procedures, potential risks, and benefits. All participants voluntarily agreed to participate and signed a written informed consent form. All images in this article have been authorized and are the property of the authors.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

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