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Pentahelix model implementation in community development: The case of Kampung Sampah Bernilai Programme in Samarinda

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Abstract: The Samarinda City Government through Department of Environment has made innovations to address waste issues through Kampung Sampah Bernilai (Kampung Salai) Programme, which is implemented at the Rukun Tetangga (RT) level. This programme aims to increase community participation in waste management from upstream to downstream. This study aims to examine the implementation of the pentahelix model in the community-based Kampung Salai Programme. The study was conducted in 3 neighbourhoods in Sempaja Timur Village that have implemented the programme. The conclusions that can be drawn from the field data are as follows: as an innovation programme, it was able to encourage the emergence of waste care communities at the RT level. The activities of this community include opening a waste bank, processing inorganic and organic waste, and developing a circular economy. The stakeholders (pentahelix elements) have adequate capacity to support waste management, but their roles are not optimal, especially the government and universities because they are still oriented towards different programmes and interests. Thus, the pentahelix model used in Kampung Salai does not guarantee the sustainability of the programme.

Keywords: Pentahelix Model, Community Development, Sampah Bernilai, Samarinda

INTRODUCTION

Along with economic development, urbanisation and population growth in Samarinda City, production and consumption activities have also increased significantly. This results in an increase in the amount of waste generation (Gwebu, 2003; Khajuria *et.al*, 2009; Omololu & Lawal, 2013; Shershneva, 2022). The presence of this waste causes environmental pollution (land, water and air) and poses a threat to human health itself (Nwachukwu *et.al*, 2018; Kenekar, 2021). Therefore, waste management is a major challenge in urbanised societies (Rahardyan *et.al*, 2015).

Table 1. Number of Population Projections in Samarinda City (People)

Area	Year		
	2021	2022	2023
Samarinda	859.250	865.911	872.304

Source: BPS, Population Projection of districts/cities in East Kalimantan, 2015-2025

Table 2. Total Waste Production in Samarinda City (M³)

Waste	Year		
	2021	2022	2023
Waste Volume	816.588	824.168	841.286

Source: BPS Samarinda



Tables 1 and 2 show that during the same period, population growth and waste production in Samarinda City were directly proportional, with population growth followed by an increase in waste production. It means that the two have a close relationship with each other.

Therefore, it is important to understand the relationship between population growth and waste generation to determine waste management strategies. In some waste management practices there are two things that need to be considered, namely on the one hand the factors that affect waste generation are the level of public education and infrastructure (Khajuria *et.al*, 2009), and on the other hand the level of education also affects public participation in waste management. Furthermore, community participation is the key to successful waste management (Setiawan *et.al*, 2022).

The development of public awareness and lifestyle towards waste management needs to be fostered and improved (Muyassarrah *et.al*, 2022). The form of cultivating a mindset and awareness of responsibility for all waste generated by households is reflected in the kampung sampah nilai programme. McDonough & Braungart (2002) explained that waste has a high and valuable value. For this reason, sustainable waste management is needed. Such waste management will involve many actors. The community is one of the actors who are required to actively participate in the management of the waste problem (Scheinberg, 2010).

The implementation of waste management in Samarinda is regulated in Peraturan Walikota Number 13 of 2019 concerning Regional Policies and Strategies for the Management of Household Waste and Waste Similar to Household Waste in Samarinda City (Kaltimtoday.co, 2021). The management of household waste and similar household waste certainly requires the involvement of the community who are the producers of the waste themselves.

The importance of community participation in waste management has encouraged the Samarinda City Government through the Department of Environment (Dinas Lingkungan Hidup/DLH) to make innovations to address waste problems through the Kampung Sampah Bernilai (Kampung Salai) Programme which is implemented at the neighbourhood association (Rukun Tetangga/RT) level. In this case, the city government as the actor most responsible for municipal waste management (Mario *et.al*, 2022), seeks to empower the community in waste management in order to encourage the emergence of public awareness and responsibility for the waste generation they produce in their daily activities. Community involvement in waste management is one of the developments of upstream waste management strategies, namely reduce, reuse and recycle (Atyadhisti & Sarifudin, 2019) and is the foundation for the transition to a circular economy (Mario *et.al*, 2022).

The community-based waste management strategy initiated by DLH is also a form of community development that aims to change people who are passive about waste problems to be active in waste management so that the environment where they live becomes better. The principles of community empowerment and collective action (Kenny & Connors, 2017) characterise community development in the implementation of this strategy.

The implementation of the Kampung Sampah Bernilai Programme will be studied using the pentahelix model. The Pentahelix Model is a design of integration between five sectors which are coordinated with each other (Amrial *et.al*, 2017). This model is used to explain the integration and coordination of the five elements involved in this community-based waste management programme innovation. In this model, each element or stakeholder works synergistically to foster innovation and innovation-based economy (Sudiana *et.al*, 2020; Muhyi *et.al* 2017) and community empowerment (Syafari, 2018). The five elements involved in this programme are the government, universities, businesses, local communities, and the media. This pentahelix model is used in community development in three salai villages in three neighbourhoods,

namely: Kampung Salai Kejujuran (RT 43), Kampung Salai Amanah (RT 32), and Kampung Salai Turi Putih (RT 48).

METHODS

This research was conducted in three neighbourhood in Sempaja Timur Urban Village, Samarinda City, which are considered successful in implementing the Kampung Sampah Bernilai program from the Environmental Agency. Data collection was conducted through literature study techniques, participatory observation, and interviews with informants. The data collected is qualitative, and is presented in the form of narratives, tables, or graphs. The main data needed are data on the idea/concept of the Kampung Salai program, the behaviour of residents or the practical activities of waste reduction and management, as well as the participation and function of the pentahelix elements (stakeholders). Function analysis was used to determine the role and importance of each pentahelix element in programme implementation. The results of the study are presented in an analytical description to explain the implementation and collaborative practices of the pentahelix model in community-level waste management.

RESULTS AND DISCUSSION

Kampung Salai Programme: A Community-Based Waste Management Innovation

The Kampung Sampah Programme has been implemented by the Samarinda City government starting since 2021 as one of the innovations to achieve waste reduction targets in accordance with the Samarinda City Jakstrada. The main objective is to encourage community involvement in achieving the waste reduction target that has been set. Each neighbourhood association is asked to form a new institution/organisation at the RT level called Kampung Sampah Bernilai with a formal structure approved by the village government. This means that the idea and initiative to form this institution came from above (the government) or top down. The main tasks of this institution are twofold, namely: (1) to mobilise residents to manage waste at home properly, and (2) to manage waste on an area scale (one neighbourhood) so that it becomes more valuable.

Following the concept designed by DLH, there are four values that will be felt by residents with area-scale waste management at the neighbourhood level, namely: social value, cultural value, worship value, and economic value. Social value refers to increased interaction, care, mutual cooperation when managing waste together so that a harmonious and harmonious community is formed. Cultural value leads to the formation of new habits (*habitus*) of waste management from the source, namely the household. The value of worship means that the behaviour of managing waste and maintaining cleanliness is lived as an act or form of worship. The meaning of economic value is that waste can be managed and processed so that it has a selling value. In addition, economic value also means that the economic value of an area increases because the quality of the environment increases to be cleaner, more comfortable, beautiful, and healthy, which reflects the physical quality of the area and its residents (DLH Samarinda, 2013).

A measurable indicator of success for this programme is the amount of waste reduction that goes to landfill. This cannot be achieved if residents still follow the old pattern of throwing all household waste into landfills. The new pattern is to reduce waste from home so that less waste goes to landfill. This new pattern is not yet understood and practised in the community. Generally, all waste is thrown into landfills.

Sempaja Timur Village is an active and successful village in the salai village programme, as evidenced by the fact that three neighbourhoods have won the salai village competition at the city level in a row. The three salai villages are Kampung Salai Kejujuran (RT 43) formed in 2021, Kampung Salai Amanah (RT 32) formed in 2022, and Kampung Salai Turi Putih (RT 48) formed in 2023. The various activities carried out by the three salai villages include: (1) Establishment of a waste bank. The waste bank accepts inorganic waste savings that still have a selling value such as plastic bottles, glass bottles, cardboard, paper, cans, iron, etc. from customers; (2) Ecobricking. Plastic waste that doesn't sell, becomes more valuable when made into ecobricks. The trick is to put small plastic waste into a plastic bottle until it is solid. Ecobricks become the material to make other products such as chairs, tables, etc; (3) Development of waste-based crafts. Waste is converted into useful and economically valuable craft items; (4) Composting or fertiliser production. Organic waste such as dried leaves, fruit peels, vegetables, etc. are processed into solid compost. Fruit peel waste can also be made into liquid organic fertiliser; (5) Maggot cultivation. Organic waste or wet food waste is utilised for maggot feed; (6) Eco enzyme producing. Eco enzyme is made from fresh fruit peel waste. In addition, these activities are able to become an economic driver for residents, with the emergence of economic activities sourced from waste management (circular economy).

The kampung salai programme, as a top-down system to engineer behavioural change in the community, can be said to be successful to a certain extent. Firstly, the three salai villages still exist today with their own challenges, dynamics and creativity. The establishment of salai villages, in fact, has raised and united people/neighbourhood residents who have been concerned about the environment since the beginning to join and move together. The number of people who care about the environment is not large, but it is very important as a driving force to continue the programme with all its challenges. Each salai village has people who consistently activate the waste care movement in their community. They are not just aiming to win the kampung salai competition organised by DLH.

Secondly, residents have a more in-depth and comprehensive knowledge about waste, and have started to carry out waste management since being involved in salai village. There is no exact data on the number of residents who have implemented good and correct behaviour in managing waste. However, it is certain that some residents have new knowledge and started managing waste from the source. This means that the Kampung Salai program initiated by the city government has been able to trigger or encourage changes in the behaviour of some residents. Concrete evidence of this behavioural change can be seen from the existence of waste banks that are still running today in the three salai villages. The customers must have sorted their waste from home, collected their valuable waste, and deposited their waste according to a predetermined schedule. In addition, the environment has become cleaner, more beautiful, and more comfortable, as seen in RT 43, which has had a salai village since 2021.

Third, there is a reduction in the amount of waste going to landfill. This can be seen from the amount of inorganic waste that residents save in the waste bank. The waste bank regularly sells the waste to collectors. Similarly, organic waste is processed by residents into solid compost, eco enzyme, liquid organic fertiliser, and others. The manager of Kampung Salai Turi Putih RT 48 said that they focus more on making solid compost and eco enzyme, in addition to managing the waste bank. The compost and liquid fertiliser are sold or used by the members themselves.

According to the salai village organisers, there are challenges they face. Firstly, there has not been full citizen participation, due to a lack of knowledge, awareness and concern. There is no structure and system built by the government that can force residents to participate. Secondly,

recycled waste products (handicrafts from waste and waste recycling) still do not have a place in the market, as evidenced by low consumer demand. This happens because the image of recycled products is still negative, namely as goods from garbage. In addition, the quality of many recycled products is still low, for example, they are less aesthetic, untidy, and look cheap. Salai village managers are faced with the problem of product marketing. Third, the knowledge of salai village managers is still low in relation to waste management technology, which limits their creativity. These challenges are basically the problems that still beset the salai village, so creative solutions must be found so that this programme does not stop in the middle of the road.

Collaboration between pentahelix elements/organisations

Following the scheme designed by DLH, the kampung salai programme must involve and cooperate with many parties/institutions. Each party is expected to play a role according to its capacity to strengthen the salai village. Stakeholders that need to be involved in the pentahelix model include government elements, universities, business people/business world, local communities, and the media. Salai village managers must be able to develop a collaboration network of the five pentahelix elements, because the government (DLH) does not facilitate it. The development of cooperation is left entirely to the initiative and social network owned by the members of the salai village itself in accordance with the activity programme carried out. From the pentahelix collaboration network built by the three salai villages, the role of each pentahelix element is known as shown in the Table 3.

Tabel 3. Peran elemen Pentahelik pada Program Kampung Salai

Pentahelix Elements	Actors	Roles
Government	Environment Departmen (DLH)	<ul style="list-style-type: none"> • Conceptualising, regulating, implementing and evaluating the programme. • Conduct tiered monitoring and coaching, namely from DLH to sub-districts, sub-districts to villages, and villages to neighbourhoods and Kampung Salai. • Facilitate the competition • If necessary, perform consultative functions.
	Government of North Samarinda Subdistrict	<ul style="list-style-type: none"> • Coordinating with DLH, kelurahan, RT heads and kampung salai for programme implementation. • Mentoring and monitoring the implementation of kampung salai • Providing facilities if needed
	Government of Sempaja Timur Village	<ul style="list-style-type: none"> • Coordinating with DLH, sub-district, neighbourhood association (RT), and Kampung Salai management. The sub-district provides information to neighbourhood associations and kampung salai, listens to the difficulties/obstacles of kampung salai, provides input/suggestions on the problems faced.

Pentahelix Elements	Actors	Roles
Colleges/universities	Academics from Mulawarman University, Samarinda and Widya Gama University, Samarinda	<ul style="list-style-type: none"> • Mentoring and monitoring the implementation of kampung salai. • Providing facilities if needed. • Transferring knowledge, providing training and mentoring to community members. The aim is to increase knowledge, environmental awareness, and provide waste management skills. Universities involved lecturers and students from both academic and social/economic programmes. Socialisation and training on waste segregation, organic waste processing (composting, coenzymes), inorganic waste utilisation, waste bank management, circular economy, social media management, etc.
Business actors	<p>Collectors</p> <p>Shop/store/catering</p>	<ul style="list-style-type: none"> • The main partnership element of a waste bank is the waste collectors who buy the waste. Since there is already a Waste Bank Induk (BSI) in Samarinda, the waste bank can establish a partnership with the BSI. This partnership is inseparable from the calculation of profit and loss. The waste bank will sell to the partner who gives a higher price. • Kampung Salai also establishes partnerships with shops/stores/catering businesses to market their products. The products of Kampung Salai's economic enterprises include hydroponic mustard greens, spinach, etc. which are fertilised with their own solid and liquid compost. The vegetables can be sold directly or made into chips or other snacks that are deposited or sold to stalls or small shops. Kampung Salai has not yet been able to collaborate with large businesses. • In addition, catering businesses can provide organic waste such as fruit peels, vegetable scraps, etc. for composting. • Partnerships with businesses are built according to the typical products produced by each salai village.

Pentahelix Elements	Actors	Roles
Local communities	Mosques/religious organisations in RT.43, RT.32, RT.48.	<ul style="list-style-type: none"> Inorganic waste collection involves institutional elements within the neighbourhood. The mosque becomes a waste bank customer and plays an active role in supporting the collection of plastic waste to be deposited in the waste bank. Proceeds from the sale of the waste become a source of cash for the mosque. Many members of the community have become customers, with the proceeds donated to the mosque.
	Dasa Wisma in neighbourhoods RT.43, RT.32, RT.48.	<ul style="list-style-type: none"> Dasa wisma became a channel of communication and socialisation for the RT and kampung salai about the Kampung Salai and waste bank programmes to the residents.
	Integrated Service Post (Posyandu) in neighbourhoods RT.43, RT.32, RT.48.	<ul style="list-style-type: none"> Posyandu is also used as an informal communication channel to socialise the waste bank and kampung salai. Posyandu cadres can become partners of kampung salai.
	The other Kampung Salai	<ul style="list-style-type: none"> Fellow Kampung Salai establish partnerships by exchanging experiences and knowledge about salai village management. In a relay manner, kampung salai RT 43 transferred knowledge to kampung salai RT 32, and then to RT 48.
Media	Whatsapp (WA)	<ul style="list-style-type: none"> The WA group is used for internal communication between salai villagers and neighbourhood associations. Communication here is important as a means of sharing information on activities, conducting education, and discussions to get input and suggestions related to programme implementation. This media is cheap and effective to establish communication with members.
	FB, IG, youtube	<ul style="list-style-type: none"> FB and IG are important tools to convey information and activities to a wider audience. A lot of knowledge and creative ideas can be learnt and exchanged so that waste management can become a broader social movement. Partnerships between Kampung Salai, the government, the business world,

Pentahelix Elements	Actors	Roles
		universities, environmental communities and others can be built in cyberspace.

Source: field data

The presentation in the Table 3 shows several things. Firstly, the partnership between government elements (DLH, Sub-district, Village) and the kampung salai is hierarchical-vertical. This means that the relationship built is not equal and parallel. The government (DLH) acts as an initiator, regulation maker, direction provider, and coach according to its authority. The roles of the sub-district and kelurahan are almost similar, namely performing administrative functions, coordination/communication channels, and guidance. The real role is to assign and make a management decree, convey various information such as technical information on the kampung salai competition, etc. In addition, the sub-district and village governments play a role in providing useful input for the development of kampung salai, which is given during visits to kampung salai. Here, kampung salai have the status of target communities, which are fostered and required to follow regulations and technical rules.

Second, the collaboration between university elements (lecturers and students) and kampung salai is also in a vertical relationship. Universities act as resource persons or mentors, while the members of kampung salai are the ones being trained. Academics and students play a role in transferring knowledge and providing training materials needed by the waste care community. Lecturers have an interest in carrying out one of the dharma of Colleges, namely community service, while students have an interest in gaining experience in field assistance. The initiative or proposal to collaborate comes from the manager of the salai village, with the interest of getting experts who are able to provide training.

Third, the collaboration between business actors and the kampung salai is more horizontal. Both parties are brought together because of economic interests, where their actions are based on profit and loss calculations. The collectors buy waste because they want to make a profit, while the waste bank will sell to collectors who can provide a high purchase price. The interest in developing a business and making a profit is taken into consideration by the waste bank and salai village managers when choosing a collector partner. Similarly, kampung salai partners with small shops or stalls that sell circular economy products, such as brazilian spinach chips, catfish chips, sticks, and others.

Fourth, the collaboration between the local community and kampung salai is horizontal. The collaboration here is between the salai village and other social units in the neighbourhood, such as mosque congregations, recitation groups, posyandu, dasa wisma, arisan groups, etc. The salai village manager has an interest in gaining the support and participation of residents by establishing partnerships with other social units. Residents in general also have an interest in a clean, comfortable and healthy environment. Collaboration between salai villages is carried out with the same interest of increasing mutual knowledge, and supporting each other so that the waste reduction movement is more widespread.

Fifth, the media element in this pentahelix model is the use of internet-based social media that is used by the management of salai village to disseminate information. The activities of kampung salai are uploaded to Facebook and Instagram with the aim of offering ideas and promoting kampung salai to inspire many people. In this way, parties who see and are interested can establish partnerships for mutual progress. In addition to facebook and instagram, kampung salai also uses WAG as a means of internal communication for neighbourhood residents. So far, the use of WAG has been very effective and efficient.

The descriptions above corroborate the findings that the success of the kampung salai programme at the RT or local community scale requires the support of many parties. Each element and actor tries to carry out its role and function. It appears that the government element, especially DLH, has a high commitment to waste reduction, but is still seen as a 'programme implementer' in the sense of a "project" (a programme/job that must be completed and ended within a certain period of time). This can be seen from the performance that increases when approaching the kampung salai competition, after the competition is over, the performance begins to decrease in fostering kampung salai. The same thing happened to the college/university element (academics) who collaborated incidentally and unsustainably. The business element can collaborate more sustainably, especially with collectors. Similarly, elements of the local community or social units in the neighbourhood can establish sustainable relationships if the salai village manager is able to maintain them. In this case, the sustainability of the pentahelik partnership and the sustainability of the kampung salai programme still seem to rely on the initiative and ability of individual actors (kampung salai managers) because the structure and system have not really been formed.

CONCLUSION

Based on the description above, the conclusion that can be drawn is that the waste reduction innovation through the Samarinda City government's kampung salai programme is able to encourage the growth of waste-caring communities in local communities. With their own challenges and dynamics, the managers of kampung salai try to carry out various activities on an ongoing basis, including waste bank activities, processing inorganic and organic waste, and developing the circular economy of residents. The success of kampung salai is due to the support and co-operation of the pentahelix.

The government, especially DLH, has a very strong commitment to the waste reduction movement to achieve the targets set by the government. However, from the pentahelik collaboration model, it can be seen that the government seems to work based on "project logic" (work that must be done and completed within a certain time). Similarly, there are elements of academia that collaborate incidentally to fulfil the community service dharma of universities. Such a hierarchical and differentiated collaboration model between elements does not support the sustainability of the kampung salai programme. The elements of business actors and local communities in the pentahelik model whose relations are horizontal have a tendency to be sustainable. Business actors, especially collectors and salai villages, have the same interests, so they can be sustainable as long as their interests are equally fulfilled. Social media elements (FB and IG) are utilised to promote activities.

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Involvement of mother in development of fruit and vegetables-based food products for kindergarten students

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Abstract: Low fruit and vegetable consumption is a national health problem. This research aimed to analyze the influence of education in the preparation, processing and presentation of fruit and vegetable-based food products. The research was conducted using a pre and post-test design with 30 mothers of kindergarten students in Malang as respondents. Mothers' knowledge about processing fruit and vegetable-based food products was measured before and after the study. The treatment was delivering knowledge and discussion regarding the preparation, processing and serving of children's food using fruit and vegetables. The food acceptability test was carried out to determine the level of children's acceptance of the developed foods products. Changes in maternal knowledge were analyzed using a paired t-test. The results showed that the types of fruit and vegetables commonly consumed by children were watermelon, papaya, bananas, oranges melons, vegetables include carrots and spinach. On average, children consume vegetables two times/day. The mother's food knowledge score after training increased from 72.63 on the pre-test to 83.11 on post-test. Statistically the increase in score was significant ($p < 0.05$). Of the 20 food products produced, almost all of them were liked by children, only two food products received poor acceptance scores, namely pear pudding and vegetable-filled cabins.

Keywords: Fruit; Vegetable; Knowledge; Kindergarten

INTRODUCTION

The average fruit and vegetable consumption of Indonesian population is still below the recommended daily intake. A person's intake of fruit and vegetables is considered sufficient if they consume fruit and/or vegetables, that is a combination of both, at least five portions every day for seven days a week. If fruit and vegetable consumption is less than these provisions, then it is categorized as insufficient. Based on health research Riskesdas data, the proportion of fruit/vegetable consumption per day by the Indonesian population in a week among people aged more than five years old is nationally generally only 1-2 portions. Only 4.6% of the population consumes fruit and vegetables greater than or equal to five portions. The proportion of the population according to age groups ranging from children, teenagers, adults and the elderly who experience a lack of fruit and vegetable consumption does not differ much, that is between 94.1 – 96.8% (Kemenkes, 2019).

Research on kindergarten students shows that the vegetable consumption of the most subjects (93.6%) is under the recommended intakes. The average children's daily vegetable consumption appear only 73.5 grams. Similarly, the fruit consumption of all subject is also lacking, with their daily fruit consumption is an average of only 58.6 grams (Putriana, 2010). The low consumption of fruit and vegetables in pre-school children has also been shown by other studies (Febriana & Sulaeman, 2014; Winiastri, 2020).

Fruit and vegetables have been proven to provide various positive benefits for health of human. Fruit and vegetables contain various vitamins and minerals required by the body. In



fact, the human body is unable to synthesize most of vitamins, therefore they must obtain them from food sources. Vitamins play an important role in metabolism in the body, such as co-factor in energy production and maintain specific body functions. Vitamin deficiency causes various diseases, for example blindness and beriberi (Dewangan & Bhatia, 2023). Furthermore, fruit and vegetables are an important source of dietary fiber. Various studies have proven one of the important benefits of vegetables as foods that reduce the risk of gastric cancer (Ferro et al., 2020). Based on these, various educational efforts have been carried to increase fruit and vegetables including the creation of various media, such as interactive multimedia and videos (Illahi, 2023; Priawantiputri et al., 2023). However, attempts to increase knowledge accompanied by direct practice are still rarely reported in the literature, therefore this research was aimed to provide knowledge to mother of kindergarten children regarding with the benefits of fruit and vegetables for children and provide skills in the development of fruit and vegetable-based food products.

METHODS

This current research was conducted using a pre-test and post-test design. The participated respondents were 30 mothers of a private kindergarten students at City of Malang, Indonesia. The respondents were recruited using the total sampling method. The mothers were initially given questionnaire to measure their knowledge related to fruit and vegetables preparation as the pre-test. Subsequently, the set of topics were delivered to them. This included discussion on how to develop home-made food product using fruit and vegetables as ingredient for their children. The nutrition topics delivered to the respondents include the importance of fruit and vegetables for children, determination of portion size of fruit and vegetable for children, development of snacks based on fruit and vegetable, preparation and processing, and estimation of nutrient contents of the developed food products. The research design of the study is presented in Figure 1.



Note: P1 = pre-test, X = treatment, P2 = post-test

Figure 1. The Research Design

At the end of study, the mothers were assessed for their knowledge and skills related to topics which had been delivered. Twenty snack products resulted from the study were assessed for food acceptance using the kindergarten students as the prospective consumers. The obtained score on knowledge was processed and presented descriptively using the following group of classifications: "Good", "Fair", "Insufficient", and "Minimum" with the respective scores of 76% or above, 56-75%, 40-55%, and below 40%. Measurement of the developed food products acceptance was carried out using the visual estimation method with the Comstock approach. The measurement was done by visually estimating the amount of the prepared food which was left unconsumed by the kindergarten students. Nutrient contents of the developed food products were estimated using nutrients database of Indonesian food available within Nutrisurvey software (Erhardt, 2007). The final score used the assessment were divided into five categories, namely "finished completely" (score 4), "a quarter remained" (score 3), "a half remained" (score 2), "three fourth remained (score 1), and "completely unconsumed" (score 0) (Kemenkes, 2013). Paired t-test was performed to determine the difference score between pre and post-tests using R software and *dplyr* package (R Core Team, 2023; Wickham et al., 2023).

RESULTS AND DISCUSSION

Characteristic of Respondents

Most of the mothers (50%) involved in this research were aged 31 – 35 years old whose general education mostly (53.3%) at senior high school. The level of education is a fundamental requirement for achieving optimum health. Research conducted in 56 countries shows that parental education, especially mothers, provides positive significant benefits toward children's nutritional status. The benefits obtained in fact tend to increase with increasing level of education. Families with the mother has higher education tend to have a smaller chance of their children to experience malnutrition (Alderman & Headey, 2017; Vollmer et al., 2017). Characteristics of respondents in detail are presented in Table 1.

Table 1. General Characteristic of the Respondents

Age (years):	Number	Percentage
- 25–30	7	24.4
- 31–35	15	50.0
- 36–40	4	13.3
- 41–50	4	13.3
Education:		
- Elementary school	3	10
- Junior high school	1	3.3
- Senior high school	16	53.3
- Diploma	2	6.67
- Graduate	7	23.4
- Post graduate	1	3.33

This current study revealed that the kindergarten children generally had low food preference to fruit and vegetables. The number of children who liked fruit and vegetables was only 23.3%. The types of vegetables the children often consume were limited to carrots and spinach, while form fruit group included watermelon, papaya, bananas, oranges and melons. This is in line with other research which shows that children's preferences for fruit and vegetables are inconsistent (Azadirachta et al., 2017). Several factors have been known to be the important determinant to children preference to fruit and vegetables consumption. These include sensory qualities, satiating power, event during consumption, availability related to season and processing methods, prices, peer influence, and outcome expectations (Krølner et al., 2011).

Effect of Education

The average knowledge of the mother on fruit, vegetable and their correlation to health before the study was 72.63 ± 16.89 and increased to 83.11 ± 15.19 after the nutrition education. The number of mothers whose knowledge categorized as "Good" at the post-test was greater than at the pre-test. On the other hand, the number of mothers with knowledge in the "Fair" and "Insufficient" categories decreased during the post-test. There was no mother whose knowledge fell under "Minimum" category. The increase in mothers' knowledge was statistically significant ($p < 0.05$). The distribution of mothers based on their level of knowledge before and after the study is presented in Figure 1. Nutrition education regarding the importance of fruit and vegetable consumption for early childhood health carried out by Yassin (2023) also shows the similar results. This may reflect the high enthusiasm of mothers in seeking fruit and vegetable intake for their children. The nutrition knowledge of mothers, especially regarding fruit and vegetables, and their consumption habits have an influence on their children consumption (Winiastri, 2020). Apart from mothers, providing fruit and vegetable education to

elementary school children has also been proven to increase children's knowledge (Hariani et al., 2021). Based on this, future research might be designed to look at the importance of mother and child coordination in determining the type of fruit and vegetables to consume so as to increase intake.

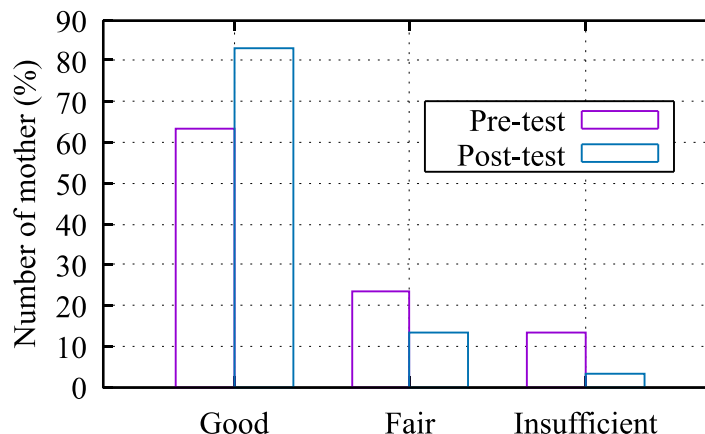


Figure 2. Knowledge Changes of Mother Before and After Study

The Developed Fruit and Vegetables-based Food Products

This research produced twenty fruit and vegetable-based processed food products. The resulted food products consisted of two groups, namely products with a dominant salty or savory taste and groups with a sweet taste. Initially the product was conceptualized, discussed with the mothers, then cooked and served to the children. The selection of vegetables and fruit used in product formulation was based on the children preferences. The resulting product might be used as a snack or side dish for case as omelette filled with vegetables, vegetable nuggets, roulade with vegetables added. Ingredients used to develop the salty or savory products included wheat flour, rice, noodles, macaroni, white bread and sweet corn. As a source of protein, the ingredients used were chicken, sausage and milk. Meanwhile, the ingredients for making pudding snacks included fruit as a source of vitamins, minerals and fiber, gelatin, sugar, eggs, milk, as well as other additional ingredients such as chocolate powder, raisins. The added vegetables to develop salty products included carrots, spinach and broccoli. The type of snack is chosen based on the types that the children like, for example if a child does not like vegetables but likes nuggets, then vegetables can be substituted for nuggets, if a child does not like vegetables but likes omelettes, then vegetables can be mixed into omelettes. Similarly, should children do not prefer fruit but like pudding, then fruit can be added to the pudding. Making healthy snacks is very challenging, apart from meeting the important nutrients contained in fruit and vegetables, good snacks require to in line with children preference. There still widely available snacks which are unhealthy because they are too salty, too sweet and high in fat (Hess et al., 2016). The developed food products for this study are presented in Table 2.

It should be emphasized that mothers are required to have knowledge of healthy food and creativity to motivate children to have good food consumption habits. Apart from being healthy, several things mother should do to increase the appeal of food are use of garnishes. Snacks with a salty and savory taste can be decorated with parsley, celery, cucumber, red chilies, spring onions, tomatoes, onions and others. Meanwhile, snacks that taste sweet can be decorated with cherries, strawberries, pandan leaves, kiwi, canned fruit or ready-made ingredients such as raisins, chocolate sprinkles, sprinkles of cheese and so on. The availability of healthy

and attractive foods is very necessary as indicated in research where children tend to consume unhealthy snacks if these foods are available at home (van Ansem et al., 2015).

Table 2. The Developed Fruit and Vegetable-based Food Products and Their Acceptabilities

No	Food Products	Energy (Kcal)	Fibre (mg)	Acceptance (%)
1.	Tomato Pudding	88.2	0.7	85,9
2.	Orange Pudding	97.3	0.7	85,3
3.	Layered Strawberry Pudding	81.4	0.9	80,6
4.	Dragon Fruit Pudding	82.2	3.5	85,3
5.	Melon Pudding	85.7	0.9	85,9
6.	Layered Mango Pudding	107.2	0.7	80,6
7.	Guava Pudding	95.8	6.4	87,5
8.	Pineapple Pudding	96.5	1.5	89,3
9.	Mix Fruit Pudding	106.8	1.6	84,1
10.	Vegetable Bitterballen	127.8	0.8	88,1
11.	Steamed Vegetable Macaroni	261.1	1.2	80,6
12.	Spinach Cake	143.7	0.6	96,7
13.	Vegetable Omelette	91.9	0.6	89,6
14.	Vegetable Noodle Balls	125.2	1.3	91,3
15.	Carrot Cake	144.0	1.0	83,3
16.	Veggie Mix Baked Rice	227.5	1.3	88,1
17.	Vegetable Rollade	78.7	5.4	90,3
18.	Vegetable Nuggets	163.2	0.5	93,3
19.	Vegetable Filled Cabin	287.2	2.4	77,4
20.	Pear Pudding	81.4	1.0	77,1

Note: Energy and fibre contents were calculated per serving size

As can be seen from Table 2, the acceptability of the developed product are generally good. For all types of products, the amount of food waste is not more than a quarter (score 3). Children like processed vegetable products such as spinach cake, vegetable rolls, vegetable noodle balls and vegetable nuggets. Spinach cake is preferred because of its attractive particularly in shape, roulade is liked because of its attractive appearance, while nuggets are a type of food that children like and mothers often serve because they are considered practical. Processed products that are less acceptable for children are pear pudding and vegetable-filled cabins. This may be because children are not used to eating the pears, therefore they could not accept the typical taste of the pears very well. Likewise for vegetable-filled cabins which have relatively low acceptance, this may be related to the use of types of vegetables that children do not like. Apart from that, it may also be related to family eating habits. Eating habits of parents, including feeding strategies, are the dominant factors that determine food habits of the respective children (Scaglioni et al., 2018).

Fruit and vegetable-based food products that have a good level of acceptance in this research can be used as formulas and are provided in children homes. This could be a mean of increase the availability and develop eating habits to fruit and vegetable not only for children but also for the whole family members. As shown by a study in pre-school children, the availability of fruit at home has been shown to increase fruit consumption significantly. However, this does not apply to vegetables (Damayanti et al., 2018). This shows the importance of making efforts such as mixing in food formulas such as those produced in this study. Different levels of children's acceptance of fruit and vegetables can be caused by differences in the taste of fruit and vegetables. In general, fruit has an innate taste that is easier to accept because it contains sweet sugar compounds. Sweet taste is the basic taste that is most easily accepted by

the human senses compared to other basic tastes, namely bitter, salty, sour (Gravina et al., 2013).

CONCLUSION

In general, kindergarten children have low preference on fruit and vegetables, only 23.3% of the sample said they like to eat them. The types of vegetables that children often consume are carrots and spinach, while of fruit group includes watermelon, papaya, bananas, oranges and melons. Mostly children consume vegetables twice daily. The energy and nutrients content of the developed food product in this study which has a sweet base taste in form of pudding is: energy 81.4 - 107.2 Kcal, carbohydrates 12.4 - 16.9 grams, fat 2.5 - 4.9 grams and protein 2, 3 - 3.1 grams, and fiber 0.7 - 6.4 mg. Meanwhile, the food products with a salty and savory taste contain energy between 91.2 - 287.2 Kcal, carbohydrates 3.1 - 13.2 grams, fat 6.6 - 15.4 grams and protein 3.1 - 13.2 grams, and fiber 0.5 - 5.4 mg. The level of children's acceptance of the food produced in the study is generally high. Mothers' knowledge on fruit and vegetables and how to incorporate them in the development of their children favorite foods increases significantly ($p < 0.05$) after the education. It is recommended that the products resulting from this research be used to increase fruit and vegetable intake of mainly pre-school children.

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The important role of moving teacher in the digital era

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Abstract: The context of the driving teacher is a new breakthrough in the digital era which continues to develop, the role of the driving teacher is central in the world of education, namely a teacher is tasked and responsible for motivating, facilitating, educating and training students in overcoming any of the difficulties/problems experienced by the participants educate yourself. The purpose of this research is the duties and roles as learning leaders, encouraging collaboration in the workplace, trying to realize student leadership, teachers must have the character values of being independent, reflective, innovative, collaborative, and pro-student in every lesson. Data collection was carried out using a field method, namely phenomenology (by going directly to the sources). The result was implementing independent learning by paying attention to students' interests, character and learning styles. Teachers do not only have a role as educators. By having a driving teacher, he is able to create a conducive and interesting classroom atmosphere when teaching and learning activities take.

Keywords: Driving; collaborative; innovative; reflective teachers

INTRODUCTION

Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, morals, beliefs and habits (Lubis et al., 2023). Through education, people can have an understanding of something that makes them human beings who are critical in thinking and acting. The measure of educational success is seen from the involvement and participation of teachers as educators, students as learners, learning materials provided, teaching methods and infrastructure provided. Indonesia's new Minister of Education and Culture (Irawaty et al., 2023).

Teachers who educate as a practice of freedom to teach are not only to share information but to share in the intellectual and spiritual growth of students. Independent learning creates students who are not only smart in memorizing learning but have sharp analysis and reasoning in overcoming a problem. Students are also expected to be able to have character (Mansyur, 2022). In independent learning, teachers must have the ability to master learning material and develop it in depth into interesting and fun material to discuss using technology as a medium in learning, so that students have high motivation in learning to develop their existing abilities. Students' creativity and creativity will grow if teachers are able to design learning that challenges them to be creative actively (Hamid H Lubis et al., 2022). Education is student-centered with a focus on students' personalities, experiences, perspectives, backgrounds, talents, interests, capacities and needs for learning.

In this context, new educational strategies must encourage interaction between teachers and students. Creative practices in education should help students to work on building their knowledge through defining things, which are of great importance in their eyes, and in the process, strengthen their sense of self-confidence and individuality. They also involve developing students' personal qualities, including a strong sense of responsibility in themselves



and others. With the development of educational policies, of course teachers must be able to adapt to applicable policies. Teachers have a very important role in learning. As professionals, teachers must be able to provide quality learning, which can produce an educated generation, a generation that is able to compete globally and has good morals (Istiqomah, 2022). Teachers can choose suitable methods by using learning media to help students understand and understand the material being taught. With varied learning methods and the use of appropriate learning media, learning that is not monotonous will be created.

Mobilizing teachers can solve various existing problems, are able to foster creative creativity and have good character in establishing communication and collaborating with other people. So to realize the independent learning program, the government is recruiting a driving teacher program to mobilize teachers to carry out their duties as teachers. in independent learning. So it is hoped that this article will be able to provide information about driving teachers and their role in independent learning in Indonesia.

METHODS

When viewed from the perspective of the research objectives carried out, this research is descriptive research. Descriptive research is research that aims to describe a person's implementation of character education. When viewed from the point of view of the usefulness of research, this research is considered pure research (applied research). Applied research is careful, systematic and continuous research carried out on a problem with the aim of using it for certain purposes (Panjaitan et al., 2023). As if looking at the data source, this research is considered field research.

As for this research method, in terms of the approach used, this research is considered phenomenological research. Meanwhile, if we look at the data analysis techniques used, this research is considered qualitative research. Qualitative research is research where the researcher examines informants as research subjects in their daily living environment. Qualitative research has several characteristics, namely: first, it takes place in a scientific setting (Asy'ari & Rufaiqoh, 2023). Second, researchers are the main instrument or data collection tool. Third, data analysis was carried out inductively.

RESULTS AND DISCUSSION

Moving Teacher

Teacher Activator Indonesia is one of the countries that implements the educational pattern of independent learning. The driving teacher in independent learning is someone who is able to direct students in developing themselves as a whole, namely having critical thinking and creative creativity (Chatarina Febriyanti & Suharyati, 2023). In independent learning, the driving teacher must be able to carry out a student-centered learning process, so that the Pancasila student profile education can be realized well as expected. Nadiem Makariem, Minister of Education and Culture of the Republic of Indonesia emphasized that someone who is able to provide guidance, instructions or direction for the transformation of independent learning education is a driving teacher. The driving teachers here do not only follow the prescribed curriculum, but also try to change all learning activities to achieve or maintain the standards of the Pancasila Student Profile, namely students who are faithful, devout, have noble morals, are more creative, are able to work together, have a spirit of diversity. global, think critically, and have independence (Tahajudin et al., 2023). Teachers driving learning must be able to balance the demands of the times in the modern era in terms of character education as a basis for

students to remain wise in facing the challenges of an increasingly developing era, and have a critical attitude in responding to all available information.

According to Ki Hajar Dewantara, a driving teacher is like a gardener, who takes care of the growth that contains good values in his students. The teacher always first becomes aware of how he is moved, then chooses to move and finally moves other people. In this way, teachers can develop a physical (extrinsic) and psychological (intrinsic) environment well. As well as developing an environment where students can cultivate good values within themselves in a fertile way (Faiz & Faridah, 2022). Meanwhile, according to (Sulastra, 2022), teachers help their students understand the values of goodness in themselves, then they believe in them as an inseparable part of who they are, so that they continue to live them out. Teachers with good character teach their students about how decisions are made through a process of moral deliberation. This also preserves good values in society through their students. The following picture shows a driving teacher who creates good character as follows:



Figure 1. Shows the requirements for the role of being a driving teacher.

From the Figure 1, it can be concluded that there are five specific roles for GPs, namely (1) Becoming a learning leader; (2) Mobilizing a community of practitioners; (3) Becoming a coach for other teachers; (4) encouraging collaboration between teachers; (5) realizing student leadership. Driving teachers must be able to become role models who have the ability and fighting power to bring about a good change in the educational ecosystem within their school and in other school units (Yulianaji, 2023). In accordance with the Minister of Education and Culture's program regarding driving teachers in independent learning, it is hoped that teachers will be able to synergize and collaborate to achieve educational change in a better direction in improving the quality of education that is quality and competitive. Driving teachers must be able to encourage other fellow teachers to always innovate. As a teacher in independent learning education, of course you must be able to have mature personality competencies, both morally and spiritually so that you become a role model for students and all school members (Simanjunatk & Sitepu, 2023).

Driving teachers are learning leaders in independent learning who have the ability to mobilize the educational ecosystem to realize student-centered education. To become a driving teacher, you must pass selection and take part in an education and training program for nine months (Muthiah, 2021).



Figure 2. Example of training in the program as a driving teacher.

The expected results of training or education from the driving teacher program are: (1) Teachers have the ability to be independent and independent in developing their competence as teachers while also being able to mobilize other fellow teachers to be able to innovate in improving the quality of output from education; (2) In independent learning, teachers must be able to side with students. Teachers must be able to move their students to develop themselves according to their talents and abilities, to achieve educational goals in accordance with the school's vision; (3) Teachers must have the ability to innovate in developing the quality of their schools. To improve the quality of school education, teachers must be able to collaborate with parents and the community so that they develop an independent attitude and have a leadership spirit; (4) Teachers must have good personality competence. A teacher is expected to have emotional maturity, both morally and spiritually, in behaving and acting in daily life, in accordance with the code of ethics that applies in society; (5) Teachers must be able to manage learning centered on students by creating good communication with parents of students.

Good teachers are teachers with good performance, but only in the classroom, but they are able to improve their students' achievements, teach creatively and innovatively, and develop their own competencies (Suyamti et al., 2024). Meanwhile, the role of the Driving Teacher is not only limited to success in managing the class they teach. However, apart from being a good teacher, a Driving Teacher must also have the ability to lead, innovate, make changes. On this basis, Pursuit of Dreams is here to support teachers to become driving teachers (Nur Anisa et al., 2024).

Freedom to Learn

Freedom to learn is an active and fun learning situation, so that students can freely choose to learn from various sources and are free from pressure. This is in line with what Mr. National Education, Ki Hajar Dewantara, once expressed: that "Schools must be learning gardens for students," so he founded Taman Siswa. In independent learning, apart from the teacher's role as a learning resource, he also acts as a learning facilitator whose task is to make learning easier for students (Sodik et al., 2022).



Figure 3. Shows one of the independent learning activities.

From the Figure 3, the teacher designs effective and enjoyable learning so that students can achieve the expected learning goals. Merdeka Belajar was born to respond to all complaints from parents about the national education system that has been in effect so far. The aim of independent learning is so that all teachers, students and parents can have a happy atmosphere. Through this freedom of learning, Minister Nadiem advised that education must create a happy atmosphere for teachers, students, guardians/parents, and for all of society (Azwarini, 2022).

As previously explained, when we want to improve the quality of students, we must also improve the quality of the teaching staff. Educators or teachers are the main spearhead of teaching and learning activities. The Teacher Mobilization Program can be a solution to improve the ability of teachers to fulfill the concept of Independent Learning, where the Concept of Independent Learning is related to the Pancasila Student Profile, where there are six aspects that need to be considered. The six aspects of the Pancasila Student Profile must be owned by students and teachers in order to achieve the goal of Independent Learning. This is also the reason for the existence of the Teacher Mobilization program because its formation aims to fulfill these six aspects including: (1) Faith, Devotion to God Almighty and Noble Morals; (2) Creativity; (3) Mutual Cooperation; (4) Global Diversity; (5) Critical Reasoning; (6) Independent (Kinanti Geminastiti Hilmiatussadiyah, Eng Ahman, 2024).

A good teacher is not necessarily a motivating teacher, but a motivating teacher is definitely a good teacher. This freedom to learn gives teachers the freedom to develop learning according to the situation, conditions and needs of the students. Freedom to assess student learning with various types and forms of assessment instruments: such as from various burdensome administrative arrangements, from the politicization of the teaching profession, as well as from various pressures and intimidation (Anggraeni & Haryanto, 2020). Freedom to learn gives teachers the freedom to associate, gather, and become members of professional organizations, which convey suggestions and criticism of policies related to improving the quality of education, both orally and in writing, offline and online. In this case, the Minister of Education and Culture said that teachers, especially honorary teachers, need to receive a "humane" salary, at least equivalent to the district/city/province minimum wage.

The Role of the Moving Teacher

The role of driving teacher will be realized and run smoothly if in its implementation there is good collaboration between educational actors. The school principal is a policy maker, protector and can provide great support for the planned program. Teachers or colleagues as a work team in the field who can help find ideas, plan, implement and also evaluate programs.

Parents and students are also no less important, because their support can motivate their sons and daughters to actively participate in the designed learning (Desianti & Rahayuningsih, 2022). Furthermore, the community, local residents and also the natural school environment can all be important supporters in implementing educational programs.

The role of driving teachers in education according to Sutikno, MS and Manizar, E. Among them are: (1) Teachers become the driving force in the learning community for fellow teachers in their school and region. In this case, being a trainer for fellow teachers is the role of the driving teacher. It is hoped that the presence of driving teachers will be able to bring about a good change for driven teachers, especially in the quality of teaching students and teacher independence in developing themselves independently; (2) Driving teachers play a role in training fellow teachers in developing student-centered learning. Teachers who are driven by driving teachers must be able to design and manage their learning as attractively as possible so that students are motivated to learn and be creative according to their talents and abilities. The motivation that exists within students enables them to improve their academic achievements independently; (3) Driving teachers become agents of change in terms of improving the quality of student leadership in schools; (4) Driving teachers must be able to create a space as a forum for discussion and collaboration with fellow teachers and those who have interests or stakeholders both in the school education environment and outside the school with the aim of improving the quality of learning; (5) The driving teacher must be a guide in the learning process which creates a comfortable and peaceful atmosphere in the learning ecosystem. With comfortable learning, students are encouraged to develop themselves into individuals who reason critically, are creative, have a noble heart and have an attitude of tolerance; (6) Develop yourself actively. Driving teachers must always upgrade themselves to keep up with the times. Teachers must be able to improve and develop their competence as teachers independently; (7) Become a motivator. The teacher is a motivator in learning in spurring learning activities.

There are several roles of Driving Teachers in the Independent Learning program, including:

1. Encouraging Increased Student Academic Achievement.

This role is a role that is shared by both types of teachers, both motivating teachers and teachers with good definitions. The role of encouraging increased student academic achievement is in line with the aim of Merdeka Belajar, namely creating a great generation in the future. This role is also in accordance with the Pancasila Student Profile aspect which requires students to reason critically and have noble morals so that their academic achievement increases (Abdurrahman, 2023).

2. Teaching Creatively.

Good teachers are able to find the right method in delivering learning material, as are motivating teachers. Sometimes students feel bored when the teaching material explained by the teacher is only delivered using traditional methods such as copying textbooks. Through teaching with creative methods, teachers have indirectly set an example for students to always innovate in seeking knowledge.

3. Actively Developing Yourself.

Active self-development is not only a necessity for students, but also applies to motivating teachers and teachers with a good definition. Actively developing yourself means always innovating and being able to make your own efforts to improve your abilities. This is in line with one aspect of the Pancasila Student Profile, namely independence (Waliyul Maulana Siregar, Septian Prawijaya, Fandi Setiawan, 2023).

4. Encouraging Student Growth and Development Holistically.

Starting from points 4 to 6 are the roles that only the Driving Teacher has. They encourage holistic student growth and development following all aspects of the Pancasila Student Profile, not only in their class but also in other classes. Mobilizing Teachers are not stuck with a prescribed curriculum. They also look at the Pancasila Student Profile achievement standards and match them with teaching methods.

5. Become a Trainer (Coach/Mentor) for Other Teachers for Student-Centered Learning.

Mover Teachers have a program to train their mentorship and leadership potential to be able to help other teachers. Mobilizing Teachers have their training place in the form of a school, so that teachers who graduate can become Mobilizing Teachers. The career path of a Driving Teacher is to become a school principal, school supervisor, and teacher training instructor. These three positions require high leadership skills. Mobilizing Teachers are expected to be able to make changes in their respective educational institutions. In making this happen, the Ministry of Education and Culture will collaborate with all department heads and regional governments to ensure this happens, so that the role of the Mobilizing Teacher can cover all regions of Indonesia.

6. Becoming a Role Model and Agent of Transformation for the Education Ecosystem.

The fundamental difference between teachers in general and Driving Teachers is the magnitude of the impact made. Mobilizing Teachers are expected to be role models and agents of change in the education ecosystem. They must have an impact other than positive change in their own classroom. Mobilizing Teachers must have an impact on other teachers as well as an impact on their school. They are like candles/torches of change in each educational unit, even outside the educational unit.

Table 1. The following is an illustration of the driving teacher's movements:

Ordinary teacher	Driving teacher
Big mouth talks a lot = tells	Small mouth, little lecture = students find out
Flickering fingers often blame = students are less creative.	Open hands to mistakes = creative students.
Narrow eyes = less attention to students who need motivation	Wide eyes = paying attention to students who need motivation
Small ears = less listening to the complaints and needs of students who have their own characteristics.	Big ears = listening to the complaints and needs of students who have their own characteristics.

This is what illustrates that driving teachers are different from ordinary teachers who have almost the same duties and responsibilities but have different perceptions and are components that need to be paid attention to by driving teachers.

CONCLUSION

As teachers, we must prepare ourselves, dare to move to start positive movements and changes so that in the future we can move other people to change in a better direction. Driving teachers must be role models who are able to direct and change the behavior and character of students for the better. To give birth to a quality generation of people who have knowledge and spiritual depth as the spearhead for the nation's progress. Freedom to learn is freedom of thought for both teachers and students in learning. The idea of independent learning is based on the essence of freedom of thought to create a happy learning atmosphere without being burdened with achieving certain scores or grades. The concept of independent learning should first start in the mindset of teachers before they teach it to students. Learning in independent learning provides flexibility and freedom for teachers in designing contextual and meaningful

learning in accordance with the standards of the Pancasila student profile, namely faith, devotion to God Almighty and noble character, creative, mutual cooperation, global diversity, critical reasoning and independence.

The role of a driving teacher and an ordinary teacher (non-moving teacher) does not have a very significant difference, because both have the task of being a driving teacher in learning to create an interesting and enjoyable learning atmosphere so that students are motivated to develop their potential independently. However, what is different is that driving teachers have a special role in independent learning, namely being teachers who are able to manage learning using existing technology by reflecting and continuously improving so that students are encouraged to improve their academic achievements independently. Students in independent learning must have the ability to think critically, creatively, have faith in God Almighty, have noble morals, be able to work together, have global diversity and have independence. In addition to his duties as a teacher, the driving teacher is tasked with being a trainer and motivator for other teachers in developing creative and innovative learning that is student-centered and able to be a good role model and bringer of change in the educational ecosystem.

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Examining the opportunities and challenges of Central Kalimantan as a buffer for the Nusantara National Capital of Indonesia

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Abstract: President Soekarno once raised the discourse of moving the capital of Indonesia from Jakarta after the independence of the Republic of Indonesia. The issue then developed as the successive presidents of the Republic of Indonesia moved the country's capital city has been yet to do so. However, since Joko Widodo was elected as President of the Republic of Indonesia in both Period 1 and Period II, the issue of moving the capital of the Republic of Indonesia has again warmed to the surface. The news of the transfer is not just an issue at this time because, on 28 August 2019, President Joko Widodo announced that with various considerations and intensive studies, the ideal location of the National Capital (IKN) of the archipelago is in East Kalimantan, precisely the district of Penajam Paser Utara. Regarding IKN regulations, on 15 February 2022, the government stipulated law (UU) Number 3 of 2022 concerning the national capital (IKN). The development of the national capital will undoubtedly directly and indirectly impact the surrounding cities and provinces, especially in Central Kalimantan. Of course, the presence of the national capital on the island of Borneo requires support from the surrounding buffer zones. It is not only support but also the participation of surrounding cities/regencies/provinces to be actively involved in building the national capital in East Kalimantan. Therefore, the development of IKN must be accompanied by the preparation and development of buffer areas for the future capital city. As the Capital City of the Archipelago, East Kalimantan Province will undoubtedly get a supply of natural and human resources from several surrounding provinces, including Central Kalimantan. The relocation of the capital city will encourage large population movements, both to the national capital and other cities around it. Of course, preparing the capital's buffer areas if there is no sustainable development roadmap will create new problems in the future. One that must be done immediately is a roadmap in the management of natural resources and human resources.

Keywords: Indonesia's National Capital; Buffer; Central Kalimantan.

INTRODUCTION

The story about moving Indonesia's capital is quite long. If we look further, the discourse on moving the capital at that time had already begun to be planned by the first president of the Republic of Indonesia, Ir. Sukarno (Kadewardana & Cahyadi Putra, 2023). With dynamic dynamics, endless debates, and of course what cannot be avoided is the tug-of-war of interests that colors the spice of moving the National Capital. The issue of moving the capital emerged again when President Joko Widodo was elected President of the Republic of Indonesia in 2014 (Kamal, 2022). It's not as easy as turning the palm of your hand, the issue of moving the



Indonesian capital has never been implemented. The issue of moving Indonesia's capital city was never implemented during Jokowi's first term of leadership. Various provinces in Indonesia are being studied to become the new capital, of course with careful considerations and in-depth comprehensive studies, because this cannot be done subjectively. The reason is, moving the capital is not to look for new problems but to solve various problems so it cannot be done quickly. Various in-depth studies are needed to determine the location of the new capital.

From various in-depth studies that have been carried out by the Ministry of National Development Planning / Bappenas, there are three provincial candidates with an excellent opportunity to become the new State Capital, namely the provinces of Central Kalimantan, West Kalimantan, and East Kalimantan (Silalahi, 2019). As we know, the three provinces are strategic on the island of Kalimantan because they both have large areas and are the heart of Indonesia. Kalimantan Island because they both have large areas and are the heart of Indonesia. The government finally announced the news of the selected province to become Indonesia's new capital on 26 August 2019. President Joko Widodo, in a press conference in front of ministers and regional heads from Indonesia, announced that the new capital city chosen is in North Penajam Paser Regency, East Kalimantan Province (Indonesia, 2019).

Although Central Kalimantan was not chosen as the new national capital, this should not dampen the government's commitment to developing Central Kalimantan in the future. Being chosen or not chosen as the country's capital should not be why Central Kalimantan stops developing its strategic sectors. In fact, not being chosen as the State Capital must be a trigger so that various shortcomings in Kalimantan are immediately addressed so that they can be more involved in preparing their superior potential for the success of development in Central Kalimantan. Central Kalimantan, as a buffer for the Nusantara national capital of Indonesia, has a very strategic role and position, considering that some areas of Central Kalimantan are adjacent to National Capital (IKN) in East Kalimantan. With this position, of course, it will be an excellent opportunity for Central Kalimantan to be a determining part of the success of various physical and non-physical developments in East Kalimantan. Central Kalimantan to be a determining part of the success of various physical and non-physical developments in East Kalimantan, especially in IKN. The enormous potential of Central Kalimantan is undoubtedly related to the existence of its natural resources. In addition, Central Kalimantan also has human resources which, if properly empowered, will become superior human resources who can be actively involved in the future development of IKN.

METHODS

The method used in this writing is normative juridical, using a conceptual approach, which departs from views and doctrines that have developed in legal science (Muhaimin, 2020), primarily related to the relocation of Indonesia's capital city. This research aims to dig deeper into the legal implications of moving Indonesia's National Capital and the opportunities and challenges for other provinces around the new Indonesian National Capital. The analysis was carried out qualitatively to obtain accurate data and examine the researcher's problem in depth so that the expected results can be obtained (Agustianti et al., 2022). This qualitative research paradigm aims to further study and understand the relationship between the government and the government and the private sector and society.

RESULTS AND DISCUSSION

Legal Implications of the Move of the Indonesian's National Capital

The transfer of the National Capital City from Jakarta to East Kalimantan Province the National Development Planning Agency (BAPPENAS) conducted a study on the transfer plan. One of the things that should be considered is the legal implications if the National Capital City is to be moved. Head of the Constitutional Law study area at the Faculty of Law, University of Indonesia, Fitra Arsil, said that moving the country's capital has financial and legal implications. The transfer will incur significant costs but will also impact state constitutional law (Elnizar, 2017).

Study of the implications of statutory provisions related to the regulation of Land Law for Investment in the Legal Area of East Kalimantan Province which is planned to become the capital of the new State, as intended in Article 33 paragraph (3) of the 1945 Constitution of the Republic of Indonesia, Law Number: 5 of 1960 concerning Basic Regulations on Agrarian Principles, Law of the Republic of Indonesia Number 2 of 2012 concerning Land Acquisition for Development in the Public Interest, Law of the Republic of Indonesia Number 25 of 2007 concerning Capital Investment and several related laws, namely the Law of the Republic Indonesia Number 40 of 2007 concerning Limited Liability Companies, and Law of the Republic of Indonesia Number: 26 of 2007 concerning Spatial Planning Law Number: 10 of 1964 concerning the Statement that the Special Capital Region of Greater Jakarta Remains as the Capital of the Republic of Indonesia.

Another legal basis is Law of the Republic of Indonesia Number 29 of 2007 concerning the Provincial Government of DKI Jakarta as the Capital of the Unitary State of the Republic of Indonesia (NKRI); this provision regulates the Provincial Government of the Special Region of the State Capital in Jakarta, so the expectations of the community with their local wisdom regarding the relocation of the State Capital to East Kalimantan so that new provisions are needed that specifically regulate the capital city in East Kalimantan (Fadillah, 2022). Law Number 5 of 1960 gives regional governments much authority to manage mineral and coal mining. For this reason, the Theory of Authority needs to be discussed more deeply so that there is a common perception in understanding the authority of the government and regional governments in managing mineral and coal mining. Based on this view, Law Number 5 of 1960 and Law of the Republic of Indonesia Number 2 of 2012 give much authority to regional governments in managing land for all aspects of life and development, especially physical development in facing the development of moving the State capital to East Kalimantan legally because it has direct involvement in the use of land for the construction of the new state capital in East Kalimantan.

Implementative Policy and Technical Planning for Central Kalimantan Province in supporting the Development of the Nusantara National Capital

The legal basis for establishing the Nusantara National Capital (IKN) is law number 3 of 2022 concerning the National Capital. The law on IKN came into force on 15 February 2022 (Gusnaeni, 2022). In law number 3 of 2022 concerning the National Capital, it is stated that the Nusantara Capital Authority will start operating by the end of 2022. Thus, the progressiveness of IKN development has begun to be echoed. One indicator of the commencement of development in the IKN Nusantara was recently marked by the gathering of Regional Heads throughout Indonesia by President Jokowi on 14 March 2022. The nuances of the president's gathering with regional heads at IKN were accompanied by the unification of land and water from all Indonesian provinces, called the "Nusantara jug ritual"(Retaduari, 2022).

Given that the construction of IKN has begun, this must also spur the regions around IKN to continue to improve to be able to support and be involved in filling various development activities in East Kalimantan. Then what about the readiness of Central Kalimantan, which is also predicted as one of the provinces supporting the IKN Nusantara? Given that development has begun, of course Central Kalimantan must also quickly improve in developing its various sectors. The policies of regional heads in Central Kalimantan, both from governors/mayors/regents throughout Central Kalimantan, must undoubtedly be progressive in terms of development concerning the management of human resources (HR) and natural resources (SDA); this needs serious attention so that the opportunity for Central Kalimantan as a buffer for IKN can be optimized so that we are not just spectators.

Central Kalimantan, as one of the IKN buffer provinces, has a huge opportunity, especially in the economic field, because the development of IKN certainly needs to be supplied by basic needs and supporting needs on a large scale (Marsekal Muda et al., 2023). The potential as a supplier of basic needs, of course, Central Kalimantan has an excellent opportunity. Note that Central Kalimantan is ready with various superior sectors that can support these basic needs. However, of course Central Kalimantan will lose if the great opportunity passes by due to unpreparedness in supporting it and supporting it. Before IKN was in East Kalimantan, the country's largest economic center was centered on the island of Java. The country's most significant economic center was on the Java island. However, in the future, with the existence of IKN, inevitably, like it or not, the center of the economy will undoubtedly be divided between Java and Kalimantan.

Central Kalimantan cannot be mediocre as part of the epicenter of the economic buffer in the National Capital, only relying on the potential as it exists. Suppose it only relies on the potential of oil palm and mining. In that case, the jargon of Central Kalimantan as a buffer for the national capital will only be a passing wind, considering that East Kalimantan also has the same potential as a mainstay of oil palm and mining. Suppose it wants to succeed as a buffer for the national capital. In that case, Central Kalimantan needs to have new production centers to become a producer of superior goods, in order to become a producer of superior goods to meet the needs of IKN in the future. It must be considered now to realize this superior production center immediately in Central Kalimantan. One potential that can be a mainstay is that Central Kalimantan can support IKN with food needs (Dewi et al., 2022). Food needs in the Kalimantan region still rely heavily on the island of Java; of course, because IKN will require significant food needs if it still brings in from the island of Java (Warsilah, 2023), it will harm us as one of the areas with the potential to support IKN.

Central Kalimantan has been awarded one of the most fantastic national projects, the food estate program (Agraria, 2020). Food estate locations in Central Kalimantan that are currently underway and prioritized as pilot projects are in the Kapuas and Pulang Pisau districts (Hidayat, 2023). Regarding its long-term goals, the Food Estate Programme is vital in improving national sovereign food security for Indonesia (Girsang, 2021). It is hoped that with the food estate program in Central Kalimantan, the potential for Central Kalimantan to become a mainstay of food providers for the needs of IKN in the future can be relied on. Food estate in Central Kalimantan should be something other than a formality, so all components must oversee this strategic program. In the future, the National Strategic Food Estate Program in Central Kalimantan will provide a multiplier effect for all sectors, improving the welfare of farmers to the absorption of labor, which will ultimately become an economic leverage in Central Kalimantan. With the existing national food estate program, Central Kalimantan is expected to

become one of Indonesia's food barns that can meet food needs at the local, regional, or even national levels, especially for food needs in the IKN.

We know that Central Kalimantan has a considerable area, but on the one hand, it also has limited facilities and infrastructure, including roads, bridges, electricity, and adequate water sources (Spencer et al., 2023). With the food estate program receiving national attention, it is hoped that it will affect other development sectors around the food estate, including road infrastructure, bridges, proper electricity, and human resources in Central Kalimantan (Yeny et al., 2022). In addition, it is hoped that with the food estate, Central Kalimantan will be able to start building business units that can support the food estate sustainability program in the future, such as production factories, packaging, and also new technologies in agriculture and animal husbandry so that more economic opportunities can be mobilized in Central Kalimantan in supporting food availability for the needs of IKN. As a buffer for IKN, the prestigious Food estate program must be utilized by Central Kalimantan as a center of excellence (center of development) (Usop & Octora, 2023); where with the existence of food estate and food fulfillment, Central Kalimantan must excel and become a mainstay to be able to play a maximum role in providing IKN needs and also national food needs in the future.

The national food estate project has now involved components of the community in Central Kalimantan, especially farmers in Kapuas District and Pulang Pisau District (because it is the program's pilot project). Of course, this program is successful and can have a positive impact. In that case, it may attract more interest from the central government so that more national projects are carried out and focused on Central Kalimantan. In the future, because the area of Central Kalimantan is vast, besides only involving the people in the two districts, of course we people in Central Kalimantan must also not remain silent in involvement in other excellent programmes. The community must also actively participate in monitoring the implementation of this food estate so that its implementation can be in line with peatland management programmes in Central Kalimantan (Irwani & Kartodihardjo, 2022). This is because with the existence of a very large national project in food estate, it must be able to ensure that the programme is in line with the ultimate goal of prospering the people of Central Kalimantan and also in efforts to use peatlands sustainably. The need for food for the adequacy of IKN and also nationally, especially after the recovery of the Covid-19 pandemic is indeed a big challenge, but do not let a good programme not have a good effect in the future, especially when it comes to natural resource management in the long term.

The current national projects, one of which is the food estate in Central Kalimantan, should certainly not be the only program that is the foundation for preparing Central Kalimantan as a buffer for the IKN Nusantara. It is because food estate is not the only one; of course, there must be other excellent programs that must exist in Central Kalimantan, one of which is, of course, the preparation of qualified and qualified human resources to be able to be more involved in the commitment to support the national capital. Both central and local governments must prepare more programmes to increase the competence of human resources (HR) who are ready in various sectors to support various leading sectors in Central Kalimantan. One form of support is in supporting the next generation in Central Kalimantan to get the highest education possible. The provision of various scholarships from basic education to higher education must continue to be one of the priorities so that human resources in Central Kalimantan can get a good education, both generations in the city and in the regions without being hindered by economic limitations.

In this case, in addition to relying on local government budget (APBD) sources to provide scholarships, local governments can build partnerships with large companies that invest in

Central Kalimantan so that they can share some of their profits to provide educational scholarships for students and students from Central Kalimantan through their CSR programs. Considering that the need for human resources for the support system at IKN in the future is in the long term, local governments must also think innovatively in preparing human resources so that they stay in education. The more sources of scholarships that the local government can raise, of course, there will also be more Central Kalimantan human resources who can obtain the highest education to become superior human resources and can compete in various sectors later.

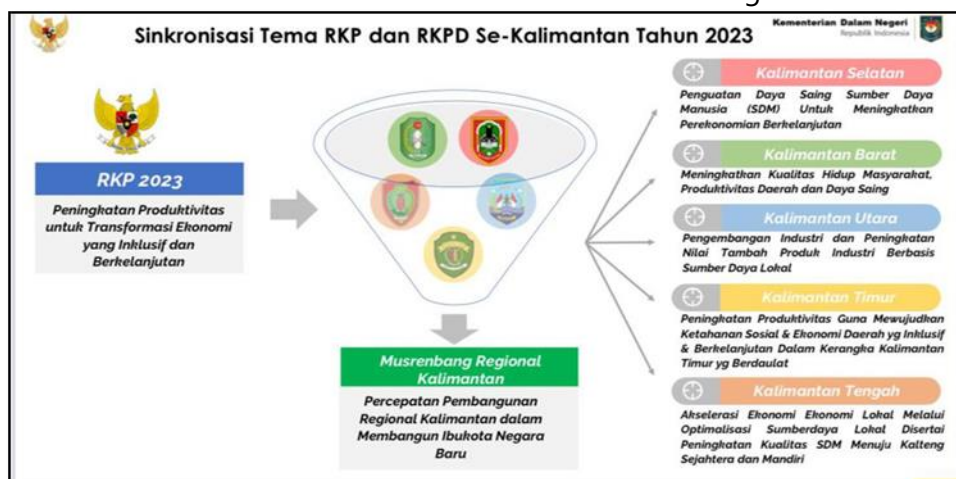
In addition to the provision of many scholarships, as we know that with a reasonably large area of Central Kalimantan and a challenging geographical area with limited facilities and infrastructure, at this time, what we should not close our eyes to is that the centers of higher education in Central Kalimantan are primarily concentrated in the Provincial Capital, namely in Palangka Raya. We can count on our fingers that the most significant campuses are in Palangka Raya. Some campuses are indeed in the regions, but in terms of numbers, we can certainly count on the fingers. Limited access to education, especially the lack of campuses in the regions, is undoubtedly an obstacle. The Central Kalimantan region, which has the demographics of one region and another that still needs more access and infrastructure facilities, is a challenge that must be resolved because it is enough to prevent them from continuing their education, especially children in rural areas. Therefore, the Central Kalimantan Provincial Government must make a long-term policy roadmap so that there is an equitable distribution of education centers, significantly higher education, in the form of new superior campuses in the Central Kalimantan region so that they can spread in various regions. This is important to make it easier for Central Kalimantan's human resources to pursue the highest education without being hindered by distance and time. The higher education spread across various regions of Central Kalimantan will make it easier for our children to choose the best campuses where they can study and pursue education, increasing the capacity of human resources in Central Kalimantan.

To smooth the establishment of new universities, the Central Kalimantan provincial government needs help working alone and in a short time. The local government certainly needs collaboration with cross-agencies both vertically and horizontally to succeed in establishing new higher education in Central Kalimantan to improve better quality of human resources. In addition to establishing new universities, of course, the current universities that already exist in Central Kalimantan must also continue to be able to improve their quality so that in the future, with the increasingly large population in IKN Nusantara and its surroundings, universities in Central Kalimantan will become one of the favorites chosen to continue their higher education. IKN is no longer talking about the island of Java, so improving the quality of education is also essential so that future generations in IKN do not think of going to school/college outside the island of Kalimantan because, in our place, the quality can be superior to the island of Java.

In addition to Central Kalimantan Province, of course, as another buffer in the Kalimantan region, provinces that are predicted as other IKN Nusantara buffers are West Kalimantan Province, North Kalimantan Province, and South Kalimantan Province. It is because, demographically, these four provinces are the closest provinces to East Kalimantan. With the status as a province that has the opportunity to activities as a buffer for IKN, of course, the collaboration between the provinces around IKN is expected to be carried out optimally in the future so that they can collaborate. It is time to re-strengthen the ties of cooperation and collaboration carried out by Central Kalimantan and other provinces in Kalimantan to support IKN; of course, we must start from now on. Concrete steps are needed in the future. It is, of

course, so that all IKN buffer provinces can show their strength in the success of IKN Nusantara with their respective potential and uniqueness so that they can excel together. Some strategic steps for inter-provincial collaboration that can be taken from now on so that the IKN buffer zone can carry out its functions properly include: (1) Strategies for strengthening the supporting capabilities of buffer zones through infrastructure development, improving local government capabilities, and the quality of local human resources; (2) Strategy for strengthening regional collaboration/cooperation between IKN buffer regions carried out between nearby provinces that have the potential to buffer IKN with apparent cooperation and roadmap; (3) Strategies for Strengthening the Role of the Sekalimantan Provinces in IKN must strengthen each other and not try to bring down each other between local governments; (4) Strategy Strengthening the buffer function of IKN in central and regional development planning policies should be a priority scale to be improved in Kalimantan.

One concrete form of collaboration carried out in the buffer zones is synchronizing the Government Work Plan (RKP) and Regional Development Work Plan (RKPD) for the Kalimantan region in 2022. Regional governments throughout Kalimantan have translated in detail their various strategic programs in the 2023 RKP and RKPD. The following are details of the form of synchronization of the RKP and RKPD in 2023 in the Kalimantan region:



Source: Central Kalimantan regional secretariat in 2022

From the figure above, we can see that Central Kalimantan in 2023 is still targeting to improve the quality of human resources. So that Central Kalimantan's human resources are qualified and have high competitiveness, the plan to improve the quality of human resources must be progressively carried out immediately with systematic, measurable and sustainable steps from now on. Central Kalimantan's abundant natural resources (SDA) will only fully and optimally benefit its people if its human resources can manage its management. Primarily, if the human resources are only utilized by a group of people, it will be very detrimental to us as a buffer for IKN.

With the existence of IKN in East Kalimantan, many human resources from outside Kalimantan will undoubtedly begin to migrate and close themselves to move to Kalimantan. It will be an opportunity and challenge for the people of Kalimantan, especially in Central Kalimantan. In the long run, population movements are certainly not only in the IKN archipelago. However, they will also undoubtedly increase population movements from other provinces to the nearest IKN area, one of which is Central Kalimantan. If Central Kalimantan's human resources are ready for tight competition, they will gain out to human resources from other places in various sectors. If our human resources cannot compete, it will cause new problems in this region. Central Kalimantan's human resources must be the object and subject

of the development if they want to succeed in their participation as IKN Buffer. Presidential regulation number 63 of 2022 concerning the Main Details of IKN stipulates that economic activities that partner (buffer) areas can develop include Higher Education, Transportation equipment industry, Renewable energy industry, Manufacturing industry, Pharmaceutical industry, Agroindustry, Agriculture, Agritourism, Health and fitness tourism, and Construction. Wellness Tourism, and Construction.

From the description of economic development in the government regulations above, Central Kalimantan must now map out what its strengths and weaknesses are as a buffer for the current IKN. The Central Kalimantan Provincial Government and its staff must move quickly in mapping and creating a planned and sustainable program in Central Kalimantan for the success of the IKN program. The Central Kalimantan Provincial Government certainly needs help to do it. Community organizations, youth organizations, religious organizations, and the wider community certainly have their views on where Central Kalimantan should go in supporting its readiness as an IKN buffer. The strategic programme must be able to empower the people of Central Kalimantan.

CONCLUSION

Various strategic programs must continue to be carried out in Central Kalimantan for the success of IKN in Indonesia, North Penajam Paser and Central Kalimantan. As one of the provinces, Central Kalimantan is predicted to become a buffer for IKN, RKP and RPKD in 2023 with a focus on optimizing local resources. Optimizing human resources (HR) in Central Kalimantan. Welcoming the move of the nation's capital to East Kalimantan must be done carefully, progressively, regularly and measurably so that Central Kalimantan's human resources have the capacity and capability to be ready to compete anytime and anywhere. supports IKN. Apart from focusing on optimizing human resources, Central Kalimantan must also start wisely in managing natural resources in this province. This is because the natural resources owned will have implications for many things that will impact the lives of many people, especially the people of Central Kalimantan in the future. Please don't do it because of IKN; it will have an impact. Of course, the faster we run out of natural resources is not wise. In an effort to strengthen Central Kalimantan's bargaining position towards IKN, the Central Kalimantan Provincial Government must actively collaborate with other provinces in Kalimantan and outside Kalimantan so that it can become a leading province, especially one that is predicted to become a national food granular in the future. Of course, the various needs to support IKN are very large, and Central Kalimantan has the potential to become one of the successful provinces supporting IKN as long as sustainable development planning, strengthening human resources and natural resource management are managed well. and planned from now on. Anticipating environmental damage must be a common concern, don't let IKN cause it. This is a disaster for Central Kalimantan because it is not wise in managing its natural resources. Don't hold back your high enthusiasm to become a supporter of IKN Nusantara. This will be detrimental to development in Central Kalimantan in the future.

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An effective reproductiv health education model in adolescents

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Abstract: Adolescents' understanding of accurate reproductive health information is crucial, and effective reproductive health education necessitates a balanced blend of technical expertise and methodological approaches to ensure that adolescents can effectively receive and comprehend the information provided. Key considerations in this endeavor encompass defining educational objectives, tailoring educational materials appropriately, identifying suitable participants and facilitators, and optimizing time and learning methodologies. This study aimed to ascertain the efficacy of different models in adolescent reproductive health education among secondary school students, employing a quasi-experimental design involving all eighth-grade students at SMP N 2 Baturraden (259 participants) with 99 respondents, utilizing a One Group pretest-posttest approach. The sample was divided into an implementation group for simulation games and a control group for focus group discussions. The outcomes revealed a non-significant difference in knowledge acquisition between the lecture method and game simulation, as indicated by a Mann-Whitney value of 456,500 with a p-value of 0.254. However, the mean rank difference favored the simulation game. Conversely, a statistical test comparing knowledge acquisition between focus group discussions and game simulation yielded a value of 391,000 with a p-value of 0.046, indicating a higher knowledge gain in the game simulation method. These findings suggest the need for a diverse range of teaching methods to intensify reproductive health education for students.

Keywords: Adolescents; Reproductive Health Education

INTRODUCTION

Getting married at an early age is a reproductive health problem because the younger the age at marriage, the longer the time span for reproduction. The pregnancy rate for women aged 10-54 years is 2.68 percent, there are pregnancies under 15 years of age, although very small (0.02%) and pregnancies in teenagers (15-19 years) are 1.97 percent. If pregnancy is not regulated through a family planning (KB) program, it will affect fertility levels in Indonesia. (BKKBN.2017).

Teenagers need to know correct reproductive health information. With this information, it is hoped that they will have responsible attitudes and behavior regarding the reproductive process. Reproductive health education itself requires both a technical approach and a method of providing information, so that the information provided can be received and understood by teenagers. Factors that need to be considered in choosing this method include: educational objectives, nature of educational material, participants, facilitators and time and learning approach. This research aims to determine an effective model in adolescent reproductive health education for secondary school children.



METHODS

Quasi experiment research with a population of all middle school students in class VIII at SMP N 2 Baturraden 259 and a sample of 99 with "One Group pretest-posttest. The sample consisted of a game simulation group, and a focus group discussion and lecture control group).

RESULTS AND DISCUSSION

Students' Knowledge About Reproductive Health in Focus Group Discussion Groups

The research results showed that students' knowledge about reproductive health after carrying out focus group discussions showed the highest increase with a percentage of 42% and the lowest remained with a percentage of 21%. The results of the Wilcoxon test obtained a p value of 0.887 ($p \text{ value} > 0.05$), which means that the pre and post knowledge values after being given the FGD were not significantly different.

The results of this research are different from research conducted by Rizki, 2012 regarding focus group discussion and simulation game methods to increase reproductive health knowledge. Focus Group Discussion or focus group discussion is a process of gathering information on a particular, very specific problem through group discussions (Irwanto, 1998) dalam Sitoresmi, 2023.

Hening and Columbia (1990) stated that a focus group discussion is an interview of a small group of people led by a resource person or moderator who subtly encourages participants to dare to speak openly and spontaneously about things that are considered important related to the discussion topic. being discussed (Manju, 2021).

So that all group members can freely participate in the discussion, the sitting formation of the participants is arranged in such a way that they can face each other or look at each other, for example in the form of a circle or rectangle Puji Hastuti, (2018).

Students' knowledge about reproductive health in the simulation game group

The research results showed that students' knowledge about reproductive health after carrying out the Simulation Game increased the most with a percentage of 58% and the lowest decreased with a percentage of 18%. The results of the Wilcoxon test obtained a pvalue of 0.011 ($p \text{value} < 0.05$), which means there is a significant difference between the pre and post knowledge scores after being given the game simulation.

The results of this research are in line with research conducted by Rizki, 2012 regarding focus group discussion and simulation game methods on increasing reproductive health knowledge, showing that there is a difference in the influence between the FGD method and the GIS method on increasing class XI students' knowledge about adolescent reproductive health ($p=0.001$).

Simulation is a learning activity that gives students the opportunity to imitate an activity required in their daily work or related to their daily work or related to their responsibilities. Simulation is also defined as a learning activity that gives students the opportunity to imitate an activity or job that is required in daily life or is related to tasks that will be their responsibility when the student later works.

Students' knowledge about reproductive health in lecture groups

Students' knowledge about reproductive health after receiving the lecture showed the highest results increasing with a percentage of 62% and the lowest decreasing and remaining with a percentage of 18% respectively. The results of the Wilcoxon test obtained a p value of

0.001 (p value < 0.05), which means there is a significant difference between the pre and post knowledge scores after being given the lecture

The results of this research are not in line with research conducted by Tarigan, 2015 regarding the effectiveness of lecture and group discussion methods on knowledge and attitudes about reproductive health in adolescents at the Harapan Mekar Medan educational foundation, showing that the group discussion method is more effective than the lecture method in increasing knowledge and attitudes about reproductive health in adolescents at the Harapan Mekar Medan educational foundation. (Mertia, dkk 2010)

Puji Hastuti, 2017 in research on Health Education Improving Practices of Kangaroo Method Care (PMK) for Postpartum Mothers with Low Birth Weight Babies revealed that health education is a process to improve the health of low birth weight babies.

Health education is also to achieve a perfect level of health, both physical, mental and social, so people must be able to recognize and realize their appreciation, needs and be able to change or overcome their environment (physical environment, socio-cultural environment, etc.) Muhammad azinar (2013).

In order to provide effective health education, it needs to be done using appropriate methods and interesting tools. Health education methods can be provided individually or in groups according to needs, situations and conditions (Frida, 2000).

The health education method applied to large groups is lectures. The lecture method is a way of presenting learning material through narrative (oral explanation) by the instructor to students. The lecture method, apart from being simple, is also effective in conveying information quickly to a fairly large target group.

Students' knowledge about reproductive health in focus group discussions, game simulations and lectures

The results of research regarding students' knowledge about reproductive health in focus group discussions, game simulations and lectures are presented in the Table 1.

Table 1. Frequency distribution of respondents based on student knowledge in focus group discussion groups, lecture simulation games.

Knowledge	FGD		<i>Game Simulation</i>		Lecture group	
	F	%	F	%	F	%
Up	14	42	19	58	21	62
Still	7	21	8	24	6	18
Down	12	37	6	18	6	18
Total	33	100	33	100	33	100

FGD : p value 0,887, Game Simulation : p value 0,011 (p value < 0,05), Lecture group p value 0,001

The results of the research showed that students' knowledge about reproductive health increased the most in the lecture group with a percentage of 62% and the lowest in the focus group discussion group with a percentage of 42%. Students' knowledge about reproductive health remains the highest in the game simulation group with a percentage of 24% and the lowest in the lecture group with a percentage of 18%. Students' knowledge about reproductive health fell the most in the focus group discussion group with a percentage of 24% and the lowest in the game simulation and lecture groups with a percentage of 18% each.

Of the three educational methods, the lecture method is the most effective method with the highest increase in knowledge among respondents, namely 62%, followed by game simulation with 48% and the lowest in the focus group discussion group with a percentage of 42%.

The results of this research are different from previous research conducted by Tarigan, 2015, which stated that the group discussion method was more effective than the lecture method in increasing knowledge and attitudes about reproductive health in adolescents at the Harapan Mekar Medan educational foundation.

There are several methods that can be used in conducting outreach, including lecture methods, group discussions, brainstorming, panels, role playing, demonstrations, symposiums and seminars, where each method has advantages and disadvantages (Effendi, 1998).

Alternative methods that can be used in adolescent reproductive health education are the lecture method and group discussion method. The lecture method, apart from being simple, is also effective in conveying information quickly to a fairly large target group, while the group discussion method can be used to convey information by providing more opportunities for students to gather opinions, draw conclusions or develop various alternative problem solutions (Sofa, 2008).

Reproductive health education materials can use simulation methods such as sociodrama, games and dramatization. This method aims to train students to understand the educational concepts or principles presented so that they can solve problems related to their reproductive health. In the study, students took part in a simulation game session of a reproductive health card game. When 1 game theme has been completed they play roles by acting out the character according to the card

CONCLUSION

Students' knowledge about reproductive health in the Focus Group Discussion group was not significantly different with a p value of 0.887 (p value > 0.05). There is a significant difference in students' knowledge about reproductive health in the Simulation Game Group with a p value of 0.011 (p value < 0.05). There is a significant difference in students' knowledge about reproductive health in the lecture group with a p value of 0.001 (p value < 0.05). Increasing students' knowledge about reproductive health in focus group discussion groups, game simulation and lectures were most effective in the lecture method with an increase of 62%, followed by game simulation with 48% and the lowest in focus group discussion groups with a percentage of 42%.

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Fresh fruit bunches price analysis

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Abstract: This study aims to determine the difference in the price of oil palm fresh fruit bunches in Indragiri Hilir District and to find out why the behavior of collector traders is different in providing prices to farmers. This research uses qualitative research with a descriptive research approach. Determination of informants in this study using snowball sampling technique. The number of informants in this study was 10 people. The results showed that the difference in ownership of ISPO and RSPO certificates for each palm oil company affects the price policy received by farmers is also influenced by the behavior of collectors in determining prices, each collector incurs different costs, the costs in question are transportation, working wages, distance, fruit quality, and operational costs as well as the amount of profit that collectors want to get.

Keywords: Price; Fresh Fruit Bunches; Smallholder

INTRODUCTION

Agricultural commodities developed in Indonesia are oil palm plantations, Indonesia has oil palm plantations that have been widely spread in 22 provinces (Hartono, 2020). One of the uniqueness of the fresh fruit bunch market compared to other commodities in Indonesia is that in pricing the government controls prices (Apresian et al., 2020; Apriyanto & Rujiah, 2021; Zeweld et al., 2017).

In accordance with the provisions of Government Regulation number 1 of 2018, the Regional Government in this case the Governor formed a FFB Pricing Team at the Provincial Level consisting of representatives of farmers (Farmer Associations), elements of local government agencies, palm oil industry players and universities. One of the tasks of the team as stated in article 8 paragraph 2 of Regulation number 1 of 2018 is to formulate and propose the amount of the "K" index and other components related to the FFB purchase price formula, in determining the "K" index and the FFB benchmark price (Apriyanto, Partini, et al., 2021; Hutami et al., 2023; Sutrisno et al., 2023).

The main purpose of the issuance of the regulation is to provide protection in obtaining fair prices for palm oil produced by smallholders and avoid unfair competition among palm oil mills, even though the government has set regulations on the price of fresh fruit bunches. The problem faced by fresh fruit bunch farmers in Kempas sub-district is the difference in prices they receive from collectors where they sell their crops so that it affects farmers' revenue. Although the palm oil has become a commodity minyak dunia, but it is necessary to understand that the sawit ini memiliki sifat is not durable and easily damaged, so it does not need to be sold immediately by the petani to earn income (money). Kondisi ini di utilized by



traders / collectors who play a role as a price determinant diwhere petani can only menerima the price (Erdawati & Yanti, 2020; Rahmat et al., 2024).

The problem faced by farmers is that the difference in distribution channels will affect the price received by farmers so that it affects farmers' revenues. Farmers as producers generally receive prices that are relatively low compared to the prices paid by consumers. This is due to the occurrence of the marketing chain and the high cost of marketing at each marketing agency, the high cost of each marketing agency is influenced by, among others, various factors including the transportation process from land to the roadside, transportation, damage or high profits to be obtained at marketing agencies (Apriyanto, Diba, et al., 2021; Syaharuddin et al., 2021).

METHODS

The design used in this study is a qualitative method that aims to explain the solution of existing problems based on data intended to obtain information on the pricing of fresh fruit bunches in Indragiri Hilir Regency. The type of research used is qualitative descriptive. The location in this study is Kempas District, Indragiri Hilir Regency, Riau Province. Time in this study is not limited, researchers will continue to conduct research until they get enough information.

This study will further examine the determination of the price of fresh fruit tadan in Indragiri Hilir Regency, the determination of informants in this study using snowball sampling techniques. The snowball technique is a sampling method in which informants are obtained through a rolling process from one informant to another.

RESULTS AND DISCUSSION

Analysis of Research Results

The purchase price of fresh fruit bunches is determined by the Governor of each Province, the price of fresh fruit bunches in Pasangkayu Regency is determined by the Governor of Riau Province, the price determination is carried out four times a month. Pricing is assisted by the FFB (Fresh Fruit Bunches) Purchase Price Determination Team formed by the Governor with membership from elements of the provincial and district / city governments in charge of plantations, plantation companies and / or oil palm entrepreneurs associations (GAPKI), and smallholder associations (APKASINDO and ASPEKPIR). The price of CPO (Crude Palm Oil) or crude palm oil in the country is determined by the price situation at PTPN's KPB (Joint Marketing Office). The end product that most determines price fluctuations in the palm oil industry is cooking oil. The price of cooking oil is the main reference for CPO prices, while the CPO price is the main reference for FFB prices (Amriana et al., 2020; Ministry of Agriculture, 2018; Sukowati, 2022).

Government policy to avoid the negative influence of changes in world prices, the government issued a series of FFB price policies that are expected to protect farmers. Government policy in determining FFB prices will affect the ability of oil palm farmers to produce, FFB prices are determined based on palm oil export prices (Alham et al., 2020; Gultom et al., 2023).

The price that has been determined by the government only reaches the company, The price given by collectors as distributors of farmers' crops until they arrive at the factory is not determined by the government (Afrianto et al., 2020; Kana et al., 2022). This information was obtained from the informant Pak David, who is a collector as well as the head of the tani jaya group. Based on information from the two informants above, it can be analyzed that the role

of the government in determining, supervising and providing sanctions in accordance with laws and regulations, only applies to the company. The next phenomenon found by researchers during research, even though the government has set an equal price for all companies, it turns out that there is a difference in the price of each company when buying fresh fruit bunches, as information provided by Mr. Karman as an employee at PT BPLP (Hatmaja et al., 2023).

The price of oil palm fresh fruit bunches (FFB) is correlated with the price of CPO, this can happen because FFB pricing refers to the price of CPO. If the amount of palm oil is abundant and more abundant than the amount demanded by consumers, the price will fall. Conversely, if the amount that producers can afford to produce is less than the amount demanded by consumers, prices will rise. But nowadays many market participants are cheating, this is called speculation (Ikhsan & Ismoyojati, 2023). Speculation activity is an activity to play with prices by regulating the number of products on the market. The ups and downs in palm oil prices that have an impact on the uncertain lives of oil palm growers have reflected how vulnerable our economy and food sovereignty are. Being an exporting country of agricultural products does not mean that the Indonesian people can meet their own food needs. Facts show, currently Indonesia is an importer of wheat, soybeans, milk, meat and sugar in very large quantities to meet domestic needs (Noviana & Ardiani, 2020).

The Indonesian Sustainable Palm Oil System (ISPO) is a policy taken by the Government of Indonesia, in this case the Ministry of Agriculture, with the aim of increasing the competitiveness of Indonesian palm oil in the world market and participating in order to fulfill the commitment of the President of the Republic of Indonesia to reduce greenhouse gases and pay attention to environmental problems. ISPO was established in 2009 by the Indonesian government to ensure that all palm oil producers meet permitted agricultural standards. ISPO is the first national palm oil standard for a country, and other countries are now trying to consider implementing similar standards among palm oil producers (Apriyanto et al., 2020; Ramadhanya & Sembiring, 2023).

Fixed pricing is under the dominance of plantation companies, the FFB pricing component is largely determined by company calculations, so that when companies do not want to buy or provide low prices, smallholder farmers have no protection. In fact, when referring to the Law on the Protection and Empowerment of Farmers, the protection of smallholders should be carried out by the central government and local governments. Unfortunately, the Law on the Protection and Empowerment of Farmers does not clearly provide protection to smallholders because it mandates laws and regulations. Unfortunately, the Plantation Law also does not regulate which categories of farmers must get protection.

Differences in collectors' behavior in providing prices

The role of the Government regarding the price of palm oil FFB is only up to its determination, but there is no further action in the form of supervision of the prices received by farmers, this results in uneven prices both from companies and collectors, FFB pricing at the farmer level cannot be underestimated, because smallholder plantations contribute 41% of the total area of national oil palm plantations, while the rest are 54% swasa plantations, and 5% state plantations (Mulyani, 2021; Paduloh et al., 2020). The government's non-participation in supervising the prices given by collectors has the authority to determine profit-oriented prices As stated by Mr. Yayat.

Based on the results of interviews with informants, it can be seen that there is no government role in the form of supervision of the FFB pricing process from collectors to farmers. In contrast to the results of research conducted by Mulyani, (2021), the results of the study show that the government has provided protection to farmers from market price intervention.

This study suggests that the government plays an active role in monitoring and guaranteeing the prices received by farmers in accordance with government policies.

Farmers must be careful with high price offers, because high price offers can be fraudulent in them. This manipulation of scales is contrary to business ethics and if left unchecked it will harm farmers. Every collecting scale should be routinely tested for normalcy regularly, so the role of the government is needed again to supervise. The quality of fruit is a regulation set by the government, transportation costs are costs that are very influential in the operations of the collector's business, while the wages of transportation workers and weighing personnel are equal to the initial agreement between collectors and workers (Jum et al., 2023).

CONCLUSION

The difference in prices received by farmers is also influenced by the behavior of collectors in determining prices, each collector incurs different costs, the costs in question are transportation, workers' wages, distance, fruit quality, and operational costs as well as the amount of profit that collectors want to get. Although collectors offer different prices, farmers cannot sell to other collectors if they have loans to collectors, either cash, fertilizer, poison or oil palm seeds.

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The urgency of establishing regional regulations on the recognition and protection of indigenous peoples to tackle agrarian conflicts in Central Kalimantan Province

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Abstract: Agrarian Reform is a national agenda that requires serious attention and concrete action from the Indonesian government. Although Law No. 5/1960 has become the legal foundation, its implementation is still constrained by many violations and obstacles. On the other hand, ratifying the Regional Regulation by the Kalimantan Provincial government is urgent, primarily to address conflicts between indigenous peoples and companies in Central Kalimantan. The Regional Regulation is expected to accommodate indigenous peoples' rights and regulate local governments' obligations. Establishing the Indigenous Peoples Committee is crucial in identifying and empowering indigenous peoples. The method used in this writing is normative juridical using a statutory approach. The research results explain that Agrarian Reform requires serious attention from the Indonesian government and concrete steps to succeed. Although UUPA already exists, its implementation is still constrained by violations and obstacles. It requires prioritization of subjects and objects, civil society participation, army and police support, total funding, and transparent supervision. Drafting a Bill on Agrarian Reform is vital to face the challenges of agrarian politics. The ratification of the Regional Regulation in Central Kalimantan is urgent to resolve conflicts between indigenous peoples and companies. The Regional Regulation must accommodate indigenous peoples' rights and regulate local governments' obligations. Establishing Masyarakat Hukum Adat is essential to identify and protect customary law communities. Overall, the ratification of the Regional Regulation and the establishment of Masyarakat Hukum Adat are concrete steps in resolving agrarian conflicts and recognizing the rights of indigenous peoples in Central Kalimantan Province.

Keywords: Agrarian Reform; Local Regulations; Indigenous Peoples

INTRODUCTION

Agrarian disputes in Indonesia have been ongoing since the New Order government under Soeharto, which claimed to be part of the development agenda. The government at that time arbitrarily seized land from the people. At that time, no one dared to challenge the Soeharto regime's dominance and power. After the fall of the New Order regime, agrarian disputes intensified as the democratic era began, resulting in previously silent communities beginning to speak out to fight for their land rights that the government had arbitrarily taken away (Sholahudin, 2017). The state's responsibility to ensure justice and welfare for all people remains relevant in addressing agrarian conflicts that remain unresolved today. Agrarian conflicts arise due to imbalances in land ownership, use, and utilization, where some individuals own large areas of land that far exceed their needs while many others own no land. Therefore,



it is necessary to restructure the purpose of land use to ensure equity in land access and utilization (Utomo, 2020).

According to the 2023 Year-End Note of the Consortium for Agrarian Reform (KPA), there were 2,939 conflicts involving 6.3 million hectares of land and 1.759 million family victims during 2015-2023. Most of these conflicts remain unresolved. Out of 851 locations prioritized for agrarian reform, only 21 priority locations for agrarian reform (LPRA) have successfully achieved land redistribution and conflict resolution, covering 5,400 hectares of land for 7,690 families. However, two of them are still awaiting the issuance of redistribution decrees. Meanwhile, 830 other LPRAs are still experiencing prolonged conflicts and have not yet been redistributed (Nababan et al., 2024). In an online discussion organized by Komunitas Akademia Benua Banjar and Fisipol Universitas Widya Mataram-Yogya with the theme "Indigenous Peoples and Land in Corporate Iron Law: Who Gains and Loses?", Komnas HAM Commissioner Hairansyah explained that there are three main issues related to indigenous peoples, namely agrarian conflicts, recognition of indigenous peoples by the state, and protection for human rights defenders (Utari, 2020). "Another significant issue is how indigenous peoples are recognized as communal entities rather than individuals. The certification that is currently done is only individual, whereas indigenous peoples are inherently communal," he added.

Hairansyah also highlighted granting business licenses to corporations to carry out mining activities and the expansion of oil palm plantations in areas inhabited by indigenous peoples. This is the cause of continuing agrarian problems as licenses continue to be granted without giving recognition to indigenous peoples, and land resources are shrinking. Indigenous peoples are also considered human rights defenders in the context of human rights, where any individual who fights for human rights is called a human rights defender (Rato, 2021). Indigenous peoples are fighting for their rights and territories and forest areas that are important for protecting the environment and the lives of other living things (Cetera, 2021).

These agrarian conflicts spread to various sectors, such as plantations, forestry, mining, and infrastructure-related conflicts (Budhiawan et al., 2020). In Central Kalimantan, these conflicts are dominated by oil palm plantation companies, mainly private companies, which have caused the people of Central Kalimantan, especially indigenous peoples, to lose their rights to the land on which they live. Often, in the struggle to defend their land, indigenous peoples face brutal and repressive actions from police and company security forces. They are also often subjected to criminalization and oppression, and even death threats haunt indigenous peoples and non-governmental organization (NGO) activists who fight alongside them. Effendi Buhing, who also serves as the Chairperson of the Laman Kinipan Indigenous Community, experienced criminalization that serves as a clear example. He was accused of theft with violence at his home in Kinipan Village, Batang District, Lamandau Regency, Central Kalimantan. When representatives from the Coalition of Justice for Kinipan testified at the Complaints Room of Komnas HAM RI, Menteng, Jakarta, they stated that Effendi was forcibly arrested without any prior summons and any investigation report (BAP) as a suspect (Lumbanrau, 2020).

There are two reasons why agrarian conflicts are often followed by violence and criminalization of victims. First, the harsh approach applied by the police and military in handling agrarian conflicts. Second, legal discrimination or formal legal approach. This legal approach often leads to accusations from the government against victimized communities as groups that oppose development and are considered criminals (Agraria, 2020). The conflicts involved several parties, including PT Kapuas Sawit Sejahtera with residents in Kapuas, PT Sawit Mandiri Lestari with the Laman Kinipan indigenous community in Lamandau District, PT Karya Septa Damai with residents in East Kotawaringin District, PT Katingan Indah Utama with

residents in East Kotawaringin District, and PT Hampara Masawiti Bangun Persada, also in East Kotawaringin District. In addition, there are also conflicts involving rubber plantation companies, such as PT Ketapang Subur Lestari, with residents in East Barito District. In the mining sector, conflicts arose between residents and PT Multi Tambang Jaya Utama in South Barito District. Meanwhile, conflicts stemming from land acquisition for the construction of Kotawaringin Market and the construction of Sampit Circuit were highlighted in the infrastructure sector conflicts in Central Kalimantan in 2019. This agrarian conflict makes Central Kalimantan the province with the third most significant agrarian conflict nationally after West Java in first place and North Sumatra in second place, according to the 2019 Year-End Data of the Consortium for Agrarian Reform.

In addition to highlighting the agrarian conflicts that occur, the provincial government of Central Kalimantan has yet to make a regional regulation on the protection and recognition of customary law communities, which is the forerunner of customary forest protection. Whereas the 1945 Constitution Article 18B recognizes the existence of indigenous peoples and also through laws and other derivative regulations as follows: (1) Law No.5 Year 60 on the Basic Regulation of the UUPA Article 14; (2) Law No. 41 of 1999 on Forestry Article 67 Paragraph 2; (3) Law No. 26 of 2007 Concerning Spatial Planning Article 5; (4) Government Regulation No. 16 of 2004 Concerning Land Stewardship Article 9 et seq; (5) Presidential Regulation No. 71 of 2012 Concerning the Implementation of Land Acquisition for Development in the Public Interest; (6) 6. Governor Regulation No. 13 of 2009 on Customary Land and Customary Rights on Land in Central Kalimantan Province.

These laws and other regulations have indicated that the governor and legislature are obliged to form Regional Regulations recognizing and protecting indigenous peoples both visibly and explicitly (Fahmi & Armia, 2022). However, the government must be more negligent in carrying out its duties. Then, Regional Regulation No. 5 of 2015 concerning the Provincial Spatial Plan (RTWP) of Central Kalimantan, which still needs to be revised, including indigenous territories in the RTWP, is homework for the government in the future. Indigenous territories must be included in the RTWP so that investors do not carelessly encroach on land and forests that are the living space of indigenous peoples.

METHODS

The method used in this research is normative juridical research with a statutory approach. The normative juridical research method examines, studies, and analyzes principles, norms, and rules from laws and regulations, court decisions, agreements, doctrines (teachings), and various data obtained from internet sites (Achmad & Mukti Fajar, 2015). The statutory approach examines all laws and regulations related to the discussed legal issues. The statutory approach is carried out comprehensively, systematically, and inclusively in describing and analyzing laws and regulations against phenomena that occur in society (Juliardi et al., 2023).

RESULTS AND DISCUSSION

The Position of Agrarian Reform in the Indonesian Legal System

Law No. 5/1960 on the Basic Regulation of Agrarian Principles (UUPA) is a law that fundamentally deals with land issues by containing 58 articles that mainly discuss land-related regulations (Supriadi, 2023). UUPA was designed to redesign the land structure to be more equitable in justice, resolve land disputes, and improve the community's welfare after implementing agrarian reform (Nuriyanto, 2020). However, the implementation of agrarian

reform has yet to be entirely successful due to the many violations in its application. This is due to the existence of many conflicting regulations. For example, separate laws on forestry, mining, plantations, and water resources, which often override the UUPA, create overlaps in inter-ministerial regulations that majorly trigger disputes and conflicts.

Agrarian reform can address land ownership and control imbalances, not just redistributing land (Mahmudah, 2021). The hope is that agrarian reform will be one of the solutions to create equality in land ownership for welfare and justice. The implementation of agrarian reform has many benefits, including creating economic independence and food security, playing a role in increasing community income, reducing land disputes, and contributing to preventing recurring conflicts that can threaten national unity (HAM, 2021). Agrarian reform is also considered an effort to fulfill the human rights of farmers (Utomo, 2021). Agrarian Reform is a national agenda that requires careful implementation planning to achieve the desired goals. In general, the process of implementing agrarian Reform involves four main aspects, namely (1) object determination; (2) subject determination; (3) mechanism and delivery system of agrarian Reform; and (4) access to agrarian Reform (Supinah, 2023).

Agrarian reform, often considered an agrarian reform effort and often associated with land reform, is a measure to improve the welfare of the Indonesian people (Masdin, 2022). Essentially, the main objectives of agrarian reform are to create social justice reflected in agrarian justice, increase productivity, and improve people's welfare (Rosmidah et al., 2023). Agrarian justice encompasses conditions where relative land ownership does not show imbalances that provide opportunities to spread and strengthen agriculture-based economic activities in rural areas (Prakoso, 2021), which then becomes the foundation for the active (and productive) participation of the majority of the agriculture-dependent population to engage in national development socially, economically, and politically (Sizi & Munir, 2023).

According to the Agrarian Development Consortium, the most significant contributor to agrarian conflicts in Indonesia over the past five years has been the plantation sector (Agraria, 2020). It is undeniable that Central Kalimantan is one of the contributors. Ideally, the steps to resolve agrarian conflicts should be based on Agrarian Reform, which is a systematic and long-term operation to arrange and arrange unequal agrarian structures in society to become more equitable through land redistribution programs and full recognition of people's rights, such as the establishment of Regional Regulations on Community Recognition and Protection, accompanied by other supporting programs that improve the quality of life of the community. Therefore, steps to correct several mistakes in the implementation of Agrarian Reform legal products and other supporting legal products that have been issued are important to accelerate the recovery of agrarian conflicts that occur in society.

Normatively, there are no legal obstacles in carrying it out, and, first, optimizing the implementation of Agrarian Reform in a limited manner through articles that strengthen people's rights in the Presidential Regulation on Agrarian Reform (Yahman, 2023), obey the principles and objectives while preventing the entry of stowaways that could be accommodated through the weaknesses of the Perpres. Second, following up on the president's commitment, together with the National Agrarian Reform Committee, the government needs to immediately push for initiatives to change the Perpres with the principles of justice and the interests of the people that must be prioritized. Changes to the Perpres of Agrarian Reform to ensure the main things, namely:

1. Institutionally, the implementation of Agrarian Reform should be led directly by the President, no longer by the Coordinating Minister or other ministers, so that this institution has executive power in dealing with chronic agrarian problems and can make

innovative steps to resolve conflicts, as well as coordinate all relevant ministries and institutions;

2. Set priorities in Agrarian Reform by prioritizing small farmers, tenant farmers, farm laborers, small fishermen, indigenous communities, and the rural poor who are still or willing to depend on the agriculture, plantation, and livestock sectors and the urban poor;
3. Establish priorities in the object of Agrarian Reform by prioritizing areas that have long been affected by structural agrarian conflicts, areas where there is inequality in land ownership between small communities and corporations, areas inhabited by indigenous peoples to be fully recognized, as well as areas that are pockets of poverty or centers of people's agriculture;
4. As an essential condition for the success of Agrarian Reform, the central and local governments must ensure the participation of civil society organizations, including people's organizations such as farmers, indigenous peoples, fishermen, and women, in the structure of the Agrarian Reform implementing agency;
5. Provide stages or procedures that support the implementation of Agrarian Reform by enabling a grassroots participation process in proposing priority locations for Agrarian Reform;
6. Ensure that the process of land redistribution, agrarian conflict resolution, and strengthening of land rights (legalization) is integrated with complementary programs of Agrarian Reform. Such programs include economic empowerment, strengthening production processes that focus on changing people's production patterns collectively and innovatively, transferring relevant technology, and providing infrastructure to market people's products in areas where Agrarian Reform is implemented;
7. Ensure total funding from the State to implement agrarian reform nationally and systematically structured;
8. Ensure support from the army and police in implementing agrarian reform and ensuring protection and respect for people's land rights. The army and police are expected to be neutral in areas experiencing agrarian conflict and in locations proposed as agrarian reform priorities;
9. Ensure the existence of a mechanism that ensures information disclosure on the progress of agrarian reform implementation and provides education and understanding of agrarian reform to bureaucratic apparatus and related parties; and
10. Develop a monitoring and evaluation mechanism for the implementation of Agrarian Reform.

Reflecting on the agrarian situation in 2019 and during Jokowi's one-term administration, Indonesia needs a comprehensive agrarian reform policy, where agrarian Reform is the nation's political agenda. Agrarian Reform must be the foundation of Indonesia's future development so that it is only a partial program in various related ministries with a shared vision and goal in viewing this agenda (Alaerts, 2020). In addition, facing the challenges of agrarian politics in the future, which has the potential to seize and displace people's land for large-scale investment, needs to be done by further strengthening the people's agenda in the agrarian sector (Hardiyanto, 2021).

Therefore, as a medium-term strategy for agrarian reform to become the nation's political agenda, it is also essential for the Jokowi administration to initiate steps to draft a Law on Agrarian Reform. This old mandate has not been realized since the birth of TAP MPR IX/2001 on Agrarian Reform and Natural Resource Management. The Draft Law on Agrarian Reform is important as a regulation higher in the legal hierarchy than the Presidential Regulation and

better guarantees the agrarian reform agenda in the future. The Draft Law is necessary to contain the principles that guide our nation to realize social justice based on agrarian resources as mandated by the Basic Agrarian Law of 1960, namely the ideals of land reform and agrarian reform in the future. Through this Draft Law, agrarian reform is not only a partial regulation but a road map on how agrarian resources in Indonesia are to be administered, regulated, used, managed, and safeguarded for justice, welfare, and sustainability of human life and nature (Junarto et al., 2024).

Thus, the Draft Agrarian Reform Law is a translation of national agrarian law, which originates from Pancasila, especially the fifth principle and Article 33 of the Constitution, which was then translated by the Basic Agrarian Law of 1960 as follows; "...obliges the State to regulate land ownership and lead its use, so that all land in all parts of Indonesia is used for the greatest prosperity of the people, both individually and in cooperation."

Of course, towards true agrarian Reform, there are still political obstacles in the form of differences of interest between ministries and state institutions, so these ideals have never been implemented comprehensively. Therefore, the President should immediately lead the initiative and invite all state and quasi-state institutions to discuss a national consensus to carry out agrarian Reform in a more planned manner. Agrarian Reform is needed normatively and practically to create a just society at the grassroots level.

Ratification of Regional Regulation on Recognition and Protection of Adat and Establishment of Indigenous Peoples Committee

The ratification of the Regional Regulation by the Kalimantan Provincial government is considered very urgent. They were looking at the current conditions in Central Kalimantan regarding conflicts between indigenous peoples and companies in several regions with the same pattern. There is no longer any reason for the government to neglect to complete the Regional Regulation where the 1945 Constitution Article 18b paragraph 2 recognizes the existence of indigenous peoples, plus several derivative laws (UU). The content of the Regional Regulation itself is expected to contain a clear subject, namely the Dayak indigenous community as a collective; the regulated object is the customary territory. The Regional Regulation must also accommodate rights to customary territories, rights to natural resources, development rights, and rights to spirituality and culture. Then, of course, the Regional Regulation also regulates the obligations of the community and government stakeholders themselves, such as requiring each city and district government to identify and validate customary land or customary forests in their respective regions. Furthermore, of course, do not forget to contain community empowerment rules such as providing scholarships for indigenous peoples who cannot afford them, holding regular training/skills training and entrepreneurship, and providing proper health assistance and welfare guarantees for indigenous policymakers.

Regulation of the Minister of Home Affairs No. 52/2014 is the basis for the government to establish a Committee on Masyarakat Hukum Adat (MHA), which will be tasked with identifying Masyarakat Hukum Adat, verifying and validating Masyarakat Hukum Adat, and then determining Masyarakat Hukum Adat. Identification as referred to in paragraph (1) is carried out by scrutinizing: (1) history of the Masyarakat Hukum Adat; (2) customary territory; (3) customary law; (4) customary property and/or objects; and (5) customary institution/government system.

As referred to in paragraph (2), the identification results shall be verified and validated by the district/city Indigenous Peoples Committee. Furthermore, the verification and validation results, as referred to in paragraph (3), are announced to the local Masyarakat Hukum Adat

within one month. In Article 6 Paragraph 1, the district/city Indigenous Peoples Committee submits recommendations to the Regent/Mayor based on the verification and validation results as referred to in Article 5 paragraph (4). Moreover, in Article 6, paragraph (2), the Regent/Mayor determines the recognition and protection of indigenous peoples based on the recommendation of the Indigenous Peoples Committee with a Regional Head Decree. Establishing Customary Law Communities is very important to support the legality of customary territories later.

CONCLUSION

Agrarian Reform is a national agenda that requires serious attention and concrete action from the Indonesian government. Although Law No. 5/1960 on Basic Agrarian Principles (UUPA) has been in place for a long time and serves as a legal foundation, its implementation has yet to succeed as there are still many violations and obstacles. To effectively implement Agrarian Reform, various strategic measures are needed, including prioritization of subjects and objects, increased civil society participation, and support from the army and police with a neutral stance. In addition, total funding from the State and a transparent monitoring mechanism are essential to ensure the success of Agrarian Reform. In addition, preparing the Draft Law on Agrarian Reform is an essential step in facing complex agrarian political challenges. Through these efforts, it is hoped that Agrarian Reform can become a structured and sustainable political agenda of the nation, which aims to create a more just and prosperous society in Indonesia.

The ratification of the Regional Regulation by the Kalimantan Provincial government is very urgent, especially considering the current conditions in Central Kalimantan, which have been associated with conflicts between indigenous peoples and companies in several areas. The completion of this Regional Regulation is expected to accommodate the rights of indigenous peoples, including rights to customary territories, natural resources, development, spirituality, and culture. The Regional Regulation is also expected to regulate local government obligations, such as identifying and validating customary land and empowering indigenous peoples through programs such as scholarships, skills training, health assistance, and welfare guarantees. Establishing the Masyarakat Hukum Adat (MHA) Committee based on Permendagri No. 52/2014 is essential to identify, verify, and recognize indigenous peoples. This is important to support the legality of customary territories and provide proper protection for indigenous peoples. Overall, the efforts to pass the Regional Regulation and the establishment of Masyarakat Hukum Adat are concrete steps in resolving agrarian conflicts and recognizing the existence and rights of indigenous peoples in Kalimantan Province.

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The phenomenon of early marriage: Study literature review

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Abstract: Background: Early marriage is still a social problem that impacts the health of every woman. In Southeast Asia, Indonesia is the country with the second most cases of early marriage after Cambodia and ranks 8th in the world. Many factors encourage women to engage in early marriage. Early marriage will have a multi-dimensional impact, because it can have major implications for development, especially related to the quality and competitiveness of human resources in the future. The negative impact of early marriage is felt by both mothers and children born. The purpose of this study was to identify the causes of early marriage. Method: The type of research used is a Literature Review with a PRISMA approach. The data used in this study comes from the results of research that have been carried out and published in 2020-2023 in the national online journal Google Scholar and international PubMed, a selection of studies with inclusion criteria analysis of the causes and effects of early marriage is the main result. The overall data analyzed has a variety of variables and sampling techniques. The population was 668,960 and the total sample was 49,948 with the characteristics of respondents ranging from early adolescence, unmarried, married, and also women of childbearing age. Results: There are 15 journals with the main results of the causes and effects of early marriage. There are about 11 variations in the causes of early marriage and the most common causes are factors: economy, customs, and own desires. The impact of early marriage found is STIs, PCOS, and also divorce. Conclusion: one of the efforts to create a quality generation in the future is not to engage in early marriage. Efforts can be made to prevent early marriage by providing information about the impact of early marriage. With increased knowledge about the risks and impacts of early marriage, it is hoped that it will raise awareness not to engage in early marriage.

Keywords: Phenomenon; Early Marriage

INTRODUCTION

The 2030 Agenda for Sustainable Development better known as SDGs (Sustainable Development Goals) is a new development agreement that encourages shifting changes towards sustainable development based on human rights and equality to encourage social, economic, and environmental development. Sustainable Development Goals (SDGs) 2030 has four main pillars in its achievement efforts, namely the pillar of social development, the pillar of environmental development, the pillar of economic development, and the pillar of legal development and governance. The Sustainable Development Goals (SDGs) 2030 were then adopted and outlined in the Nawacita program as the basis for development carried out in Indonesia (Kurniawati & Sari, 2020).

One important agenda in the 2030 Sustainable Development Goals (SDGs) is gender equality or achieving gender equality and empowering all women and girls. One of the classic



problems experienced by some people in Indonesia and one of the triggers for health problems is the tradition of early marriage that is still practiced in the community. Although in several years, it has experienced a downward trend, the practice of early marriage is still often found in Indonesian society. Early marriage tends to occur in rural communities. This is related to economic conditions that are in the lower middle category or associated with low levels of education. However, the shift in the trend of early marriage has also begun to occur in urban areas. Free sexual behavior, unlimited association, easy access to porn sites, uncontrolled drinking behavior, drug use, and lack of supervision from parents make the problem of early marriage more difficult to control (Trisilowaty, D., Kurniasari, N. D., & Hidayati, 2019).

Getting married at the age of less than 20 years is a situation that must be faced by some adolescent girls around the world, especially in developing countries such as Indonesia. Although the 1954 Declaration of Human Rights explicitly opposed the practice of early marriage, in reality, the practice of early marriage persists in various regions of the world including Indonesia. Early marriage is a marriage that is carried out because the bride and groom are old when they want to carry it out. By Law Number 16 of 2019, amendments to Law Number 1 of 1974 concerning marriage in Article 7 paragraph 1 it is stated that marriage is only permitted if the man and woman have reached the age of 19 (nineteen) years. Marriage to children under the age of 19 is not allowed. However, in the next article, marriages that are less than the specified age can be performed if they request dispensation to the Religious Court for very urgent reasons accompanied by sufficient supporting evidence. (Nikmah, 2021)

The issue of early marriage in Indonesia has reached an alarming level. Based on UNICEF data as of the end of 2022, Indonesia is currently ranked 8th in the world and 2nd in ASEAN, with a total of nearly 1.5 million cases. According to the Directorate General of Religious Courts, there were 34,000 dispensation applications filed from January to June 2020. As many as 97 percent of applications were granted, 60 percent of those who applied for marriage dispensation were children under 18 years old. Head of the National Population and Family Planning Agency (BKKBN) Hasto Wardoyo stated that early marriage is part of social disasters, such as maternal mortality, infant mortality, malnutrition in children, and also the impact on the economy (Juhaidi, A., & Umar, 2020).

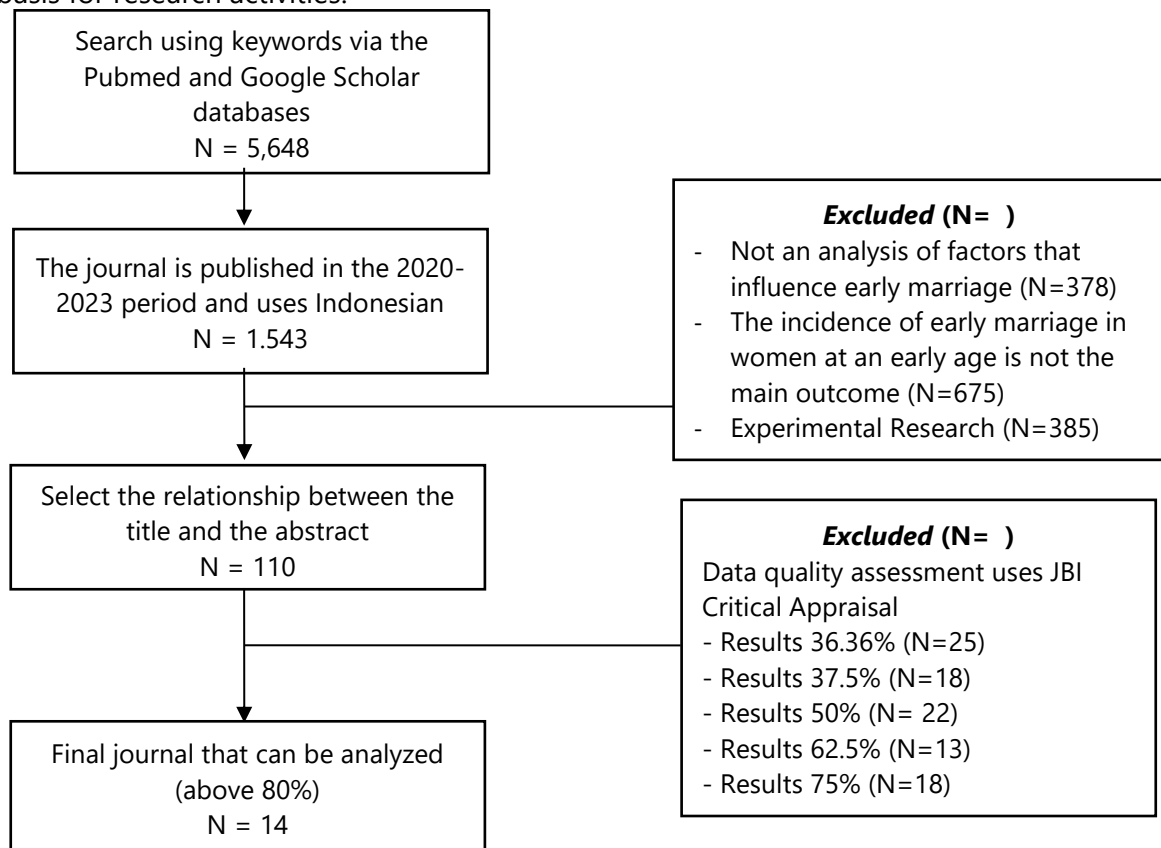
Several people who have previously researched this matter include research conducted by Umi Sumbulah and Faridatul Jannah (2012), in a journal entitled "Early Marriage and Its Implications for Family Life in Madurese Society (Legal and Gender Perspective)". The research method used is empirical with the research data sources being local community leaders, KUA employees, parents of perpetrators, and perpetrators of early marriage. Data collection was carried out using interviews, observation, and documentation methods. (Adinda Hermambang et al., 2021) Early marriage in Madurese society is a phenomenon related to sociocultural factors in a patriarchal society, which considers women's position to be lower and is considered a complement to men, this is contrary to Islamic teachings. very respectful of women. The implication is that there is a lot of conflict and strife in the household among couples in early marriages which will further result in divorce (Fadlyana, E., & Larasaty, 2016a).

A literacy study conducted by the UNICEF organization found that the interaction of various conditions in society results in children and adolescent girls being at risk of marriage at an early age. Apart from traditional and cultural factors, today early marriage is also triggered by promiscuous sexual behavior or immoral acts committed against children or teenage girls. Apart from that, the classic reasons that often justify the practice of early marriage are economic, hopes, and desires to achieve social and financial security after marriage, causing many parents to encourage their children and teenage girls to marry at an early age. Several

national and international communities realize that the problem of early marriage is a serious problem that threatens a community on a small scale and a large scale threatens the condition of a country. (Saleheen et al., 2021) This is because early marriage occurs among children and young women. will be at risk of experiencing various disorders in all aspects of their lives due to the practice of early marriage, such as forced sexual relations, pregnancy at an early age, increased risk of contracting HIV, other sexually transmitted diseases, and cervical cancer (Fadlyana, E., & Larasaty, 2016b).

METHODS

The type of research used in this research is quantitative research with a Literature Review research design. Quantitative research is a research method based on concrete data, research data is measured using statistics as a calculation tool, related to the problem being studied to produce a conclusion. A literature review is a framework, concept, or orientation for analyzing and classifying facts collected in research carried out, literature review contains descriptions of theories, findings, and other research materials obtained from reference materials to serve as a basis for research activities.



The data used in this research comes from the results of research that has been carried out and published in national and international online journals. In conducting this research, researchers searched for journals published on the internet using PubMed and Google Scholar with the keywords: causes of early marriage, the impact of early marriage in Indonesia, causes of early marriage, and the impact of early marriage. The data collection process is carried out by filtering based on criteria determined by the author of each journal taken. Journal collection criteria are as follows: (1) Year of the literature source taken from 2020 to 2023, suitability of research keywords, relevance of written results and discussion; (2) Strategy for collecting journals as literature using accredited journal sites such as PubMed and Google Scholar; (3) An

effective way of writing for journal settings is by entering keywords according to the title of the writing and conducting a search based on an advanced search by adding AND/OR notation or adding the + symbol. For example, researchers search the Google Scholar search engine by typing the words "((factors) AND (early marriage)), or by typing "factors" + "early marriage", "marriage" + "early", "factors -marriage factor" + "Early age women"; (4) Do a search based on full-text; (5) Assess the journal from the abstract whether it is based on the research objectives and carry out a critical appraisal using the JBI tool.

RESULTS AND DISCUSSION

Results

No.	Researcher	Title	Year	Results
1.	Rima Hardianti, Nunung Nurwati	Factors Causing Early Marriage in Women	2020	Based on the Law on Child Protection, if someone is less than 18 years old, they are still considered a child. Thus, if someone marries under the age of 20, it can be said to be an early marriage. Factors causing early marriage: cultural factors and customs, parental factors, economic factors, education factor, and individual factors
2.	Dini Fadilah	Aspek Overview of the Impact of Early Marriage from Various Aspects	2021	From the results of research conducted by researchers using observation techniques, online surveys via Google Forms, and short interviews with informants, it is clear that almost 60% of early marriages often occur in every region in Indonesia. With the categories a lot, medium, and quite often found in various regions. Through observation techniques carried out by researchers, there were approximately 15 cases that occurred over approximately 4 years. The cause of early marriage was found in 11 cases due to pregnancy out of wedlock, and 4 of them were due to personal desires or internal factors. Of the 15 cases, it was found that 6 divorced at a young age, and the rest were still husband and wife. The ages in these cases were 14 – 19 years old (Fadilah, 2021)

No.	Researcher	Title	Year	Results
3.	Adinda Hermambang, Choirul Ummah, Eunike Sola Gratia, Fathul Sanusi, Wilda Maria Ulfa, Rani Nooraeni	Factors that Influence Early Marriage in Indonesia	2021	Research results show that 17.53% of women of childbearing age entered into early marriage or were less than 17 years old at their first marriage in Indonesia. As reported by the UNICEF Global Database (2020), 8% of women of childbearing age in ASEAN countries are married under the age of 15, and 29% are married under the age of 18. Therefore, the rate of early marriage in Indonesia can be said to be quite high. Based on Table 2, the proportion of early marriage among WUS who had their first sexual intercourse before marriage was higher than those who had their first sexual intercourse after marriage. WUS who have sexual relations before marriage have a high risk of experiencing unwanted pregnancy
4.	Winda Hamidah, Assyifa Junitasari	Counseling on the Impact of Early Marriage on Psychology, Health and Household Harmony in Cipete Village	2021	Results: The large number of couples who marry early (below the minimum age limit for marriage) is because the education of most couples who marry early is still low, many have only graduated from junior high school and have not even graduated from elementary school. Then there are factors such as below-average family income, precarious work, and the tendency of socio-cultural factors such as ethnicity, which most believe that getting married at an early age is not a problem (previous habits of parents)
5.	Vegi Keleyan, Clara Moningka, Rino Komalig	Knowledge Level of Young Women About the Impact of Early Marriage on the Reproductive System at Kema Perintis Vocational School, Kema Village 1, Kema District, 2022	2022	Based on Table 1.1, it shows that 5 respondents (8.33%) are 14 years old, 12 respondents are 15 years old. (20%), 16 year olds were 14 respondents (23.4%), 17 year olds were 24 respondents (40%), and 18 year olds were 5 respondents

No.	Researcher	Title	Year	Results
				(8.33%). Based on Table 2.3, shows that respondents' knowledge about the impact of early marriage on the reproductive system is dominated by 28 respondents (46.7%) with sufficient knowledge, 23 respondents with good knowledge (38.33%), and 9 respondents with poor knowledge (15.0%) (Keleyan et al., 2022)
6.	Shilpa Aggarwal, Kate L Francis, S.Ghazaleh Dashti, and George Patton	Child Marriage and The Mental Health of Adolescent Girls : a Longitudinal Cohort Study From Uttar Pradesh anadBihar, India	2022	Of the 7,864 unmarried girls at wave 1 who completed wave 2 data collection, 1,825 (23%) girls married between the two waves (Table 1). Compared with unmarried girls, newly married girls are more likely to be from the state of Bihar (61% vs 42%), from backward classes (including scheduled castes, scheduled tribes, and other backward classes, 88% vs 76%), from households with the lowest income (16% vs. 8%), and had no schooling at wave 1 (11% vs. 5%). The median age of the first wave was 17 years (IQR 16-18) (mean age 16.8 (SD 1.5) for newly married girls and 16 years (IQR 15-17) (mean age 15.5 (SD 2.3) for unmarried girls (Table 1), Baseline characteristics of the entire sample of unmarried girls at wave 1 (n-9732) were comparable to those included in this study with information available for both waves (Aggarwal et al., 2022)
7.	Ahmed Abdus Saleh Saleheen, Sharmin Afrin, Samia Kabir, Md.Jakaria Habib, Maliha Afroj Zinnia, Md.Ismail Hossain Iqramulhaq, Ashis Talukder	Sociodemographic Factors And Early Marriage Among Women In Bangladesh, Ghana And Iraq: An Illustration From Multiple Indicator Cluster Survey	2021	A geographical illustration of early marriage in the three countries is presented in Figure 1. Here, Bangladesh is divided into three different regions according to the frequency of early marriage: red (>1000), orange (501-1000), and green (<500) (Figure 1A). Ghana is divided into three distinct

No.	Researcher	Title	Year	Results
				regions: red (>500), orange (101-500), and green (<100) (Figure 1B). Meanwhile in Iraq, the number of incidents of early marriage varies according to red (>700), orange 301-700), and green (<300) (Figure 1C). Bangladesh is divided into several districts, while Ghana and Iraq are categorized into different regions. The occurrence of early marriage in Bangladesh and the red zone is one of the districts with the largest number of incidents of early marriage (Figure 1A). As shown in (Figure 1A), most early marriages occurred in Dhaka, Chattogram, Cumilla, and Bogura. However (Figure 1B), shows that the incidence of early marriage in the Hana and Ashanti regions with the highest number of incidents and included in the red zone, is much lower than in Bangladesh. Overall, the experience of early marriage in Raq, where the capital city of Baghdad has the highest number of incidents, is also lower than the incidence in Bangladesh (Figure 1C)
8.	Kathryn M. Yount, Robert L. Durr, Iriana Bergenfeld, Sudhimdra Sharma, Cari Jo Clark, Anne Laterra, Sadhvi Kalra, Anne Sprinkel, Yuk Fai Cheong	Impact Of The CARE Tipping Point Program In Nepal On Adolescent Girls' Agency And Risk Of Child, Early, Or Forced Marriage: Results From A Cluster-Randomized Controlled Trial	2023	Results of Cox-proportional hazards models of time to marriage. Table 7 presents the results of the Cox proportional hazards model for the effect of assignment to TPP or TPP+ on time to marriage in months. There is no significant program impact on the length of marriage in months. Propensity score models with a single covariate provided similar results, and robustness checks using recalibrated times in weeks and days showed that the results were unchanged (available upon request). Table 8 presents the mixed model results for the moderation

No.	Researcher	Title	Year	Results
				analysis, which investigates whether community-centered means of gender norms, household poverty, and girls' school graduation rates moderate the impact of the Tipping Point Program (TPP) and/or the Tipping Program Point Plus (TPP+). There was no significant moderating impact on community average gender norms, meaning the nonsignificant main effects of TPP and TPP+ were consistent across communities, regardless of average gender norms. Otherwise, household poverty at the community level moderates the program's impact on girls' aspirations for education and marriage, mobility and freedom of movement, and gender discrimination within the family. Simple slope analysis showed a significant positive impact of TPP versus Control on a) girls' aspirations for education and marriage in the community were less than or equal to - 5.70/5.28 1.08 SD below the community's mean household poverty level and b) Girls' reports of gender discrimination in the family (Yount et al., 2023)
9.	Ruvani W. Fonseka, Lotus McDougal, Anita Raj, Elizabeth Reed, Rebecka Lundgren, Lianne Urada, Jay G. Silverman	Measuring The Impacts Of Maternal Child Marriage And Maternal Intimate Partner Violence And The Moderating Effects Of Proximity To Conflict On Stunting Among Children Under 5 In Post-Conflict Sri Lanka	2022	Found no association between maternal child marriage or any form of maternal IPV and stunting across the country. However, the lack of linkage at the country level does not rule out the possibility of a moderate relationship between independent variables and stunting that varies due to their proximity to conflict. This investigation is further supported by our finding that proximity to conflict is associated with stunting, and previous research finds conflict

No.	Researcher	Title	Year	Results
10.	Ruchira Tabassum Naved, Ph.D., Sadhvi Kalra, Ph.D., M.Phil., M.A., Aloka Talukder, M.S.S., Anne Laterra, M.P.H, Tanha Tabassum Nunna, M.P.H, Kausar Parvin, M.P.H, and Mahfuz Al Mamun, M.S	An ExxplorationOf Social Norms That Restrict Girls Sexuality And Facilitate Child Marriage In Bangladesh To Inform Policies And Programs	2022	is also associated with child marriage and IPV (Fonseka et al., 2022) All boys in the sample attended co-educational schools, while only 14 of the 20 girls attended school. Most of the fathers and mothers who participated in this study had completed 5-12 years of education. Major social norms that limit girls' sexuality and perpetuate child marriage. Norms around a girl's mobility, interactions with her male peers, and her role in decisions around her marriage emerged as key drivers of CM. Although there are exceptions, particularly for educational purposes, all respondents agreed that girls are expected to remain in or near their homes, not talk to or socialize with boys, and defer to their fathers' authority in making decisions about who and when they will Marry. Participants linked the justification for each of these norms to the need to control a girl's sexuality to maintain her and her family's reputation and honor. In this context it is seen as a preventive measure or, if there is a violation of these expectations, a mitigation measure (Naved et al., 2022)
11.	Erica Soler-Hampejsek, Ph.D., Beth KAngwana, Ph.D., Karen Austrian, Ph.D., Sajeda Amin, Ph.D., and Stephanie R. Psaki, Ph.D	Education, Child Marriage, and work outcomes among young people in Rural Malawi	2021	Figure 1 shows the prevalence of child marriage at the last observation, when 93.9% of female respondents and 86.6% of male respondents in the analytical sample were aged 20-23 years, and the remainder were aged 18-19 years. Only 15.4% of young women in the analytic sample were still unmarried at the last observation compared with 65.8% of young men. The prevalence of child marriage

No.	Researcher	Title	Year	Results
				among young women is high, with more than half (53.2%) married as children. Among young women who married as children, almost a third were married at the age of less than 16 years. In contrast, only 5.8% of young men were married as children, 7 of whom were married at the age of less than 16 years (Soler-Hampejsek et al., 2021)
12.	Zulham hamidan Lubis, R. NunungNurwati	The Influence of Early Marriage on Parenting Patterns	2020	From various aspects, early marriage is one dimension of social problems. This has a significant impact on the continuity of couples who marry early because they are considered not ready to fulfill their demands and responsibilities in fulfilling their real rights in living a life in society. Three types of systems, namely sociocultural systems, mechanical systems, and organic systems. In the mechanical system itself, there is interconnection between parts which is based on the transfer of energy, in organic systems the interconnection between parts is based more on the exchange of information than on the exchange of energy. Meanwhile, in socio-cultural systems, interconnectedness is based more on the exchange of information. (Community Service and Research et al., n.d.)
13.	Siti RohmiZalilah, Syafuruddin Ni Made Novi Suryanti	Early Marriage and Women's Reproductive Health in Dasan Lekong Village, Sukamulia District, East Lombok Regency	2023	Observations and interviews conducted with subjects and informants found that the factors causing early marriage are, 1) Education, on average marriage is the result of dropping out of school, 2) customs, because where they live there is still a habit of marrying young from the past, 3) the environment, victims of

No.	Researcher	Title	Year	Results
14.	Vika Tri Zelharsandy	Analysis of the Impact of Early Marriage on Reproductive Health in Empat Lawang Regency	2022	<p>parents' divorce, children then look for a comfortable place outside the house which causes them to marry at an early age and the family is afraid of being disgraced if their child has a relationship with a very close man and Finally marry them. The impact of early marriage on women's reproductive health is, 1) Sexually Transmitted Infections (STIs), namely infections that attack a person's reproductive system and are mostly transmitted through intimate relations. 2) Polycystic Ovarian Syndrome (PCOS), a disorder of the menstrual cycle that affects 6-25% of women of reproductive age (Rohmi Zalilah & Made Novi Suryanti, 2023)</p> <p>There are several things related to the incidence of teenagers getting married at an early age, including factors such as parental characteristics (parents are worried about being disgraced because their daughter is dating a man who is very attached to his daughter so he marries her. their children), teenagers (teenagers think emotionally about getting married because they love each other and are ready to get married), environment and relationships (occurs because they get pregnant during dating) and culture (considering girls who marry late is a disgrace to the family). These factors are interrelated, causing teenagers to marry early (Prodi et al., 2022)</p>

Discussion

Marriage is a valuable and meaningful moment for every human being because marriage is a moment where two different people are united in the status of husband and wife to build a family that is physically and mentally happy and promises to be together forever. In law, the age limit for men and women to marry has been regulated in Law Number 1 of 1974, where the minimum age for women to marry is 16 years and 19 years for men. However, this

regulation was revised with Law Number 16 of 2019 which stipulates that marriage can be carried out with a minimum age of 19 years for both men and women.

A person who enters into a marriage under the age requirements stipulated in the law is considered an early marriage. According to (BKKBN, 2010), early marriage is a marriage carried out under the age of 20 years. This is based on the health sector because marriages carried out before the age of 19 years or above can be at risk of cervical cancer which is caused by immature uterine cells (Ariani et al., 2021). According to the United Nations Development Economic and Social Affairs, Indonesia is the country ranked 37th with the highest rate of early marriage in the world and second after Cambodia in ASEAN.

Adolescence according to WHO is 10 - 19 years old, while the age limit for teenagers used by the Ministry of Health of the Republic of Indonesia is based on Law of the Republic of Indonesia no. 35 of 2014 and Minister of Health Regulation no. 25 of 2014, namely 10 to 18 years of age. Adolescence occurs because of the transition period from childhood to adulthood, so in this case adaptation is needed to the changes that occur. Young women have quite striking changes both psychologically and physically. So assistance is needed to maintain and deal with these changes well, especially in the reproductive organs.

Every year cases of early marriage in Indonesia are quite high. For example, in 2018 data, early marriages in Indonesia reached 1,184,100 with the essence of women marrying at approximately 18 years of age. The highest number of cases was on the island of Java with 668,900 women who married at a young age. Furthermore, during the COVID-19 pandemic, the number of early marriages increased because in January-June 2020, 34,000 applications were submitted for early marriage and 97% of them were granted, even though in the previous year, namely 2019, early marriage applications reached 23,700 applicants. This case is quite encouraging. concerned about Indonesian youth.

The rise of early marriage certainly cannot be separated from the causes and effects behind this, the factors can be from oneself such as being married by the incident, or from outside such as parental coercion, while early marriages that occur in cities are mostly triggered by accidents (married by the incident) as a result of urban promiscuity. Marriage caused by personal (internal) encouragement is an important factor that must be addressed. Many individuals are ready to marry at an early age because they think they are ready in all respects, both physically and mentally.

Early marriages have increased in 2020 due to COVID-19, due to the COVID-19 pandemic. Some parents believe that their children studying at home is a burden. As a result, married parents abandon their children to shift the burden to others. Home learning activities provide children and/or teenagers with the opportunity to mingle with their environment, including dating, apart from the inconvenience of studying at home. The family was worried that if the children dated, they might cross the line, so the parents decided to get married immediately (A'im Matun Nadhiroh, 2022)

The COVID-19 pandemic has had a significant impact on human life throughout the world; in addition to the increase in the number of deaths, gender inequality has emerged. The COVID-19 pandemic has impacted every country in the world, eroding the number of women and girls' basic rights, as well as their value and role in society. It is important to recognize that women and girls face a much higher risk of discrimination, neglect, and abuse and are more likely to experience it. During the pandemic, government initiatives in learning were accompanied by an increase in the number of early marriages or children from various locations, both nationally and internationally (A'im Matun Nadhiroh, 2022)

Young marriages are marriages carried out under the productive age, namely < 20 years, which is considered to be the age at which a woman is not yet ready physiologically (the reproductive organs are still in the process of becoming mature) and psychologically (mentally not yet ready and understanding about sexual relations so that she will cause prolonged psychological trauma in the child's soul which is difficult to heal), and without them realizing it, by the act of getting married at a young age, many kinds of health problems will occur, one of which is reproductive health problems.

Early marriage has an impact on reproductive health. Complications from pregnancy and childbirth are the main cause of death for girls aged 15 to 19 years in developing countries. Of the 16 million teenage girls who give birth every year, it is estimated that 90% are married and 50 thousand of them have died. In addition, the risk of maternal death and the death of newborn babies is 50% higher among mothers under the age of 20 compared to women who become pregnant at the age of 20 years and over. The impact of early marriage on maternal health during pregnancy is that mothers are susceptible to anemia, and preeclampsia and have a greater risk of miscarriage, while during childbirth the mother will experience bleeding and prolonged labor, during the postpartum period the mother is also susceptible to experiencing postpartum infections and bleeding.

Considering that a very young age for conceiving has an impact on a woman's reproductive health, those under 19 years old are not capable and not ready to conceive and give birth, their pelvic bones are still too small so they are at risk of harm during the birthing process. This case required the mother and child to be rushed to hospital. Women who marry young while pregnant are at high risk of miscarriage. Moreover, for women between the ages of 15-19 years, the rate of miscarriage and death during childbirth is 2 times greater risk for mother and child. Then, when pregnancy occurs in teenagers there is a risk of birth complications such as obstetric fistula, infection, anemia, bleeding, and eclampsia. Childbirth in teenage pregnancies also increases the risk of fetal abnormalities, pelvic abnormalities, abnormal strength when pushing, and so on. Apart from the negative impacts that occur on prospective teenage mothers, pregnancy at a young age will also have an impact on the baby's health. The possibility of premature babies, and physical disabilities, is twice as risky as people who conceive as adults, this is because young mothers' hormones are still unstable and they often experience stress.

The impact of early marriage does not only impact physical and mental health, women and men who experience early marriage unknowingly bury their right to study and go to school, as well as to achieve their dreams. Economic and social impacts also worsen the situation, a man has to be responsible for earning a living and loses his social circle, as well as women have to take care of the family and lose the opportunity to play with their peers. The other impacts can also occur on children born from early marriage.

Therefore, we need to make efforts to prevent early marriage to reduce the divorce rate and maternal mortality rate. By providing education to the general public so that they understand the impacts of early marriage. Even though carrying out preventive or prevention efforts is not easy, it would be better to work together to make society aware, such as creating an organization that supports the movement for healthy teenagers and not marrying at a young age, educating all communities, and helping each other to stop cases of early marriage, because if we are not the ones who are aware of this problem, who will raise awareness and solve this problem, it could be in the community or children's school environment. Then carry out counseling and outreach to people who still adhere to marriage at a young age, and provide direction and appeal to stop early marriage.

CONCLUSION

The number of cases of early marriage in Indonesia since ten years ago has started to decline, but is still in the high category, as is the case in several other Asian countries. Factors that can trigger early marriage such as culture, tradition, socio-economics, and climate change can influence the decision to marry off children and even individual willpower. The impact of early marriage can be multisectoral, so joint commitment and cross-sector collaboration between Ministries/Institutions (K/L) is needed to prevent it. One effort that can be made to prevent early marriage is to provide information about the impact of early marriage. The aim of providing information is to increase knowledge about the risks and impacts of early marriage so that awareness of not engaging in early marriage will also increase.

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Effect of water decoction of Eucalyptus Grandis clone CGP 066 leaf as a Biofungicide to Curvularia sp. on oil palm seeds in vitro

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Abstract: Oil palm growth during the nursery is always attacked by leaf spot disease caused by the fungus *Curvularia* sp.. Leaf spot disease can be controlled by application of biofungicides. A plant that can be used as a biofungicide is *E. grandis*. This research aims to determine the effect of *E. grandis* leaf boiled water in inhibiting the growth of *Curvularia* sp. and get the best concentration of *E. grandis* leaf boiled water in inhibiting the growth of *Curvularia* sp. colonies by in vitro. This study used a Completely Randomized Design with 4 treatments and 5 replications, namely: B0 (control/without treatment), B1 (0.5 ml of *E. grandis* leaf boiled water), B2 (1 ml of *E. grandis* leaf boiled water), and B3 (1.5 ml of *E. grandis* leaf boiled water). The observed parameters are the growth of *Curvularia* sp. colonies, the growth area of *Curvularia* sp. colonies, the percentage of accelerated growth of *Curvularia* sp. colonies. and the percentage of inhibition of *Curvularia* sp. colonies. The results showed that the of *E. grandis* leaf boiled water had an effect on inhibiting the growth of *Curvularia* sp. colonies and the best concentration of *E. grandis* leaf boiled water was in treatment B3 (1.5 ml of *E. grandis* leaf boiled water) with the percentage of inhibition of *Curvularia* sp. 57% at 5 HSI and the inhibitory activity level is quite strong.

Keywords: Biofungicides; Boiled Water; *Curvularia* sp; *Eucalyptus grandis*; Oil Palm Seeds

INTRODUCTION

The growth and development of oil palm plants during the nursery period which experience disease problems is caused by pathogens, such as Natuna wilt disease (Lethal Yellowing), stem base rot, anthracnose leaf rot, leaf spot, and stripe disease (Budi & Hadie 2015). One of the diseases that often attacks oil palm seedlings is leaf spot disease (*Curvularia* sp.). This disease attacks dead leaves that have opened. The initial symptoms of leaf spot disease (*Curvularia* sp.) are small round yellow spots appearing on the edges of the leaves and translucent which can be seen on both leaf surfaces, the spots enlarge, the shape is round, the color gradually changes to light brown and the center of the spots settles (curves). After that, the color of the spots changes to dark brown. Leaf spot disease is caused by pathogenic fungi from the species *Curvularia* sp. can be better known as leaf spot. Spread can be through soil, carried by gusts of wind, rain splashes, and possible infection from insects (Lalang et al. 2016).

Control of leaf spot disease in oil palm nurseries caused by the fungus *Curvularia* sp. Using synthetic fungicides is often used, because it is considered more efficient and easier to use or apply. Sinaga et al. (2017) stated that the use of fungicides Synthetic with the active ingredient Tekunazole with a concentration of 2 ml/L can inhibit the growth of leaf spot disease on oil palm seedlings (*Curvularia* sp.). Continuous use of synthetic fungicides can cause pathogen resistance, poisoning in humans and pollute the environment (Hadizadeh et al. 2009). An environmentally friendly alternative for controlling pathogens is to use natural fungicides or biofungicides from plant extracts (Apriani et al. 2014). The use of biofungicides has promising



prospects because the raw materials for biofungicides are abundant in nature and the manufacturing process only requires simple technology. Biofungicide materials are relatively easier to obtain, safe for non-target organisms, environmentally friendly, safe for human health and easily decomposed so they do not cause environmental pollution (Trisawa & Iwa 2014).

Biofungicides can be obtained from various types of plants which contain compounds to inhibit the growth of diseases in plants (Tjahyani et al. 2015). Plants used as biofungicides have distinctive characteristics such as a pungent odor and a bitter taste (Elvana 2022). One plant that can be used as a biofungicide is the Eucalyptus sp. According to Koswandy and Ramadhania (2016), E. globulus leaves can be used as an antiseptic, disinfectant, antibacterial, antifeedant, anti-fungal, antioxidant, antimicrobial and insect repellent.

Eucalyptus sp. leaf extract. contains active compounds that can be used as raw materials for biofungicides to control plant diseases. The active compounds contained in the leaves of Eucalyptus sp. including flavonoids, terpenoids and tannins (Setianingsih et al. 2017). Kurniawan (2022) reported that administering methanol extract of acacia leaves at a concentration of 1 ml was able to inhibit the development of the fungus *Curvularia* sp. In vitro. The E. grandis plant is one of the essential oil producing plants which is widely processed and used to produce oil from its leaves (Salam 2018). The E. grandis species has been widely developed at PT. Riau Andalan Pulp & Paper (PT. RAPP) includes clone CGP 066, E. grandis clone CGP 066 is the result of a cross between E. grandis and E. pellyta. (KCN 2 PT. RAPP 2021). The leaves of E. grandis have narrower, more bell-shaped leaves with prominent valves (Hollyday and Ivan 1989). E. grandis leaves have a lower water content compared to Eucalyptus sp varieties. other. E. grandis leaves contain quite high levels of phenolic compounds, terpenoids, flavonoids and tannins, which are secondary compounds that are anti-fungal and antioxidant, which compounds can damage fungal cell membranes and can inhibit fungal cell growth (Setyowati et al. 2019), so that E. grandis leaves can be used as a biofungicide. The aim of this research was to determine the effect of boiled water from the leaves of E. grandis clone CGP 066 as an inhibitor of the growth of *Curvularia* sp. on oil palm seedlings in vitro and obtained the best concentration of boiled water from E. grandis clone CGP 066 leaves to inhibit the growth of *Curvularia* sp. in vitro.

METHODS

The research was carried out in May – June 2023, at the Integrated Laboratory, Pelalawan Indonesian Institute of Plantation Technology (ITP2I), Building I Pangkalan Kerinci, Pelalawan, Riau. The experimental design used was a non-factorial Completely Randomized Design (CRD), consisting of 4 treatments with 5 replications. The total number of experiments carried out was 20 units. The treatment tested in the Eucalyptus grandis leaf boiled water test research as a biofungicide against *Curvularia* sp. on Oil Palm Seedlings in Vitro based on research by Kurniawan (2022) which has been modified. The treatments in this experiment are as follows:

- B0 : Control (No Treatment)
- B1 : Give 0.5 ml of boiled water from E. grandis leaves
- B2 : Give 1 ml of boiled water from E. grandis leaves
- B3 : Give 1.5 ml of boiled water from E. grandis leaves

The research implementation included sterilizing material tools, taking leaf samples, making boiled water from E. grandis leaves, making PDA, taking samples of oil palm seedling leaves, isolating and purifying *Curvularia* sp, and testing boiled leaf water on the growth of *Curvularia* sp.

Observation Parameters

Colony Growth of *Curvularia* sp.

Observation of colony growth began on day 2 HSI until 7 days after inoculation (HSI). Observations were made macroscopically by looking at the color, growth direction and structure of the colony mycelium in each treatment and compared with the control (Ningsih et al. 2016).

Colony Growth Area of *Curvularia* sp.

Observation of the area of colony growth was carried out by measuring the diameter starting on days 2 to 7 DAP. Diameter growth observations were carried out vertically and horizontally. Diameter growth is measured using Formula 1 (Wahyuningtyas 2013):

$$DAR = \frac{\emptyset x + \emptyset y}{2} \dots\dots\dots (1)$$

Information :

DAR = Diameter in Radial Direction

$\emptyset x$ = x-axis diameter (cm)

$\emptyset y$ = Diameter of the y axis (cm)

Percentage of Colony Growth Acceleration of *Curvularia* sp.

Observation of the percentage of accelerated growth of the *Curvularia* sp fungus colony. carried out on days 2 to 7 of HSI (Silangit 2015). The comparison of growth acceleration was calculated from the last observation of the control colony which had filled the petri dish, then compared for each treatment using Formula 2.

$$PPT = \frac{PDKP}{PDKK} \times 100\% \dots\dots\dots (2)$$

Information :

PPT = Growth Acceleration Growth

PDKP = Treatment Colony Diameter Growth

PDKK = Control Colony Diameter Growth

Percentage of Colony Inhibition of *Curvularia* sp.

Observation of the growth of the fungus colony *Curvularia* sp. on PDA media carried out on days 2 to 7 HSI. The Relative Resistance Level (HR) of each treatment on PDA media can be calculated using Formula 3 (Nurafidah 2014):

$$HR = \frac{D1-D2}{D1} \times 100\% \dots\dots\dots (3)$$

Information :

HR = Relative Barrier

D1 = Diameter of control colony (cm)

D2 = Diameter of treatment colony (cm)

The level of activity of the inhibitory power of vegetable biopesticides is grouped based on the inhibitory power which can be seen in Table 1 (Novriyanti et al. 2010).

The data analysis used in this research is quantitative and qualitative analysis techniques. Quantitative data obtained included the area of colony growth, the percentage of colony growth acceleration, and the percentage of colony inhibition of the growth of the fungus *Curvularia* sp. processed using Excel software. The qualitative data obtained was macroscopic observation of colony growth, and presented in the form of images (Yudistina et al. 2013).

Table 1. Active level of inhibitory power of vegetable biopesticides


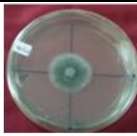
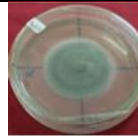





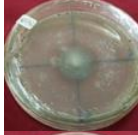
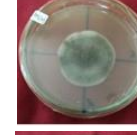







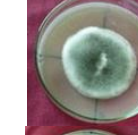
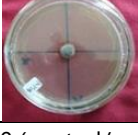

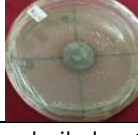
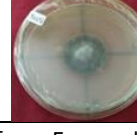
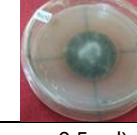

Inhibitory Power Activity (IPA)	Level of inhibitory activity
>75%	Very Strong
50% - 75%	Strong
25% - 50%	Currently
0% - 25%	Weak
0%	Not Active

RESULTS AND DISCUSSION

Colony Growth of *Curvularia* sp.

Growth of the fungus colony *Curvularia* sp. macroscopically, including colony color, colony surface and growth of the colony tip. Based on macroscopic observations, B0 experienced thickening of the colonies, had a blackish gray colony color, a smooth surface, the reverse side was black and the growth direction was uneven from 3 DAP to 7 DAT. Treatment B1 showed that the colonies were thickened, had a blackish gray color, a smooth surface, the reverse side was black and the direction of colony growth was uneven from 4 DAS to 7 DAS. Treatment B2 showed thickening of the colonies, the colony color was blackish gray, the surface was smooth, the reverse side was black and the growth direction was uneven from 4 DAS to 7 DAS. Treatment B3 showed thickening of the colonies, the colony color was blackish gray, the surface was smooth, the reverse side was black and the growth direction was uneven from 4 DAP to 7 DAT (Table 2).

Table 2. Colony growth of *Curvularia* sp. from 2 DAI to 7 DAI

Treatment	Days After Inoculation					
	2	3	4	5	6	7
B0						
B1						
B2						
B3						

Information: B0 (control/no treatment), B1 (giving boiled water from *E. grandis* leaves 0.5 ml), B2 (giving boiled water from *E. grandis* leaves 1ml), and B3 (giving boiled water from *E. grandis* leaves 1.5 ml)

This shows that treatments B0, B1, B2 and B3 both have blackish gray colonies, a smooth surface, the reverse side is black and the growth direction is uneven. This is in accordance with research by Mujahid (2018) which stated the results of macroscopic observations of *Curvularia* sp. on PDA media, it shows that the *Curvularia lunata* fungus colony is blackish gray, the surface is smooth, the reverse side is black and grows concentrically. Butarbutar et al. (2019) stated that macroscopically, at first the colonies were white, at the age of 3 days they started to turn blackish brown and on the fifth day they started to turn black. *Curvularia* sp. has a brown colony

color and resembles velvet or cotton. The same thing was stated by Kalpajar et al. (2015) that the macroscopic characters of the fungus *Curvularia* sp. has round colonies, the top of the colony is blackish gray and the bottom of the colony is black with tapered colony edges, and the texture of the colony is like cotton.

Colony Growth Area of *Curvularia* sp.

Colony growth area of *Curvularia* sp. on PDA growth media which had been mixed with boiled water from *E. grandis* leaves, observed from 2 DAP to 7 DAP. Colony growth area of *Curvularia* sp. in each treatment can be seen in Figure 1. Based on Figure 1, the area of growth of the *Curvularia* sp colony. in treatments B1, B2 and B3 were lower than in treatment B0 on PDA growth media which was observed up to 7 DAT. This explains the effect of giving boiled water from *E. grandis* leaves on the growth of *Curvularia* sp colonies.

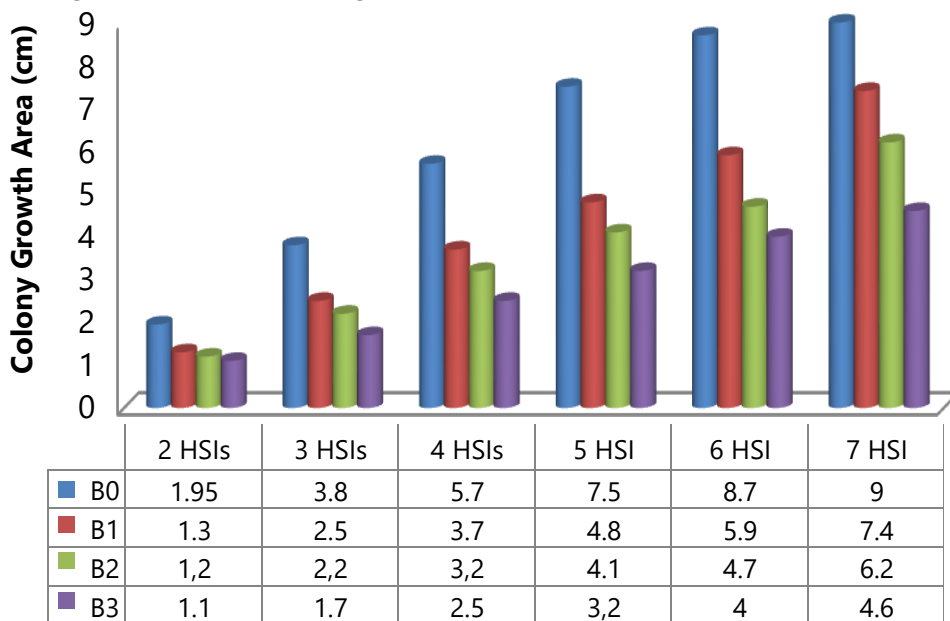


Figure 1 Colony growth area.
■ B0 (control/no treatment),
■ B1(giving boiled water from *E. grandis* leaves 0.5 ml),
■ B2 (giving water decoction of *E. grandis* leaves 1 ml) and grandis1.5 ml)
■ B3 (giving boiled water from *E* leaves.

Based on Figure 1, observations from 2 DAS to 7 DAS, it is known that B0 treatment shows extensive growth of *Curvularia* sp colonies. ranges from 1.95 cm to 9 cm. Treatment B1 showed extensive growth of *Curvularia* sp colonies. ranges from 1.3 cm to 7.4 cm. Treatment B2 showed extensive growth of *Curvularia* sp colonies. ranges from 1.2 cm to 6.2 cm. Treatment B3 showed extensive growth of *Curvularia* sp colonies. ranges from 1.1 cm to 4.6 cm. These results show that the higher the treatment given with boiled water from *E. grandis* leaves, the wider the growth of the *Curvularia* sp colony. lower on PDA media. This occurs due to the suppression of colony diameter caused by secondary metabolite compounds contained in *E* leaves grandis which metabolite compounds can damage the functioning of fungal cell membranes. This refers to the statement by Mailoa et al. (2014) who stated that secondary metabolite compounds can cause fungi to experience damage to their cell membranes and inhibit fungal growth and even cause fungal cell death. The metabolite compounds contained in *E. grandis* leaves include phenolics and flavonoids (Soegianto 2019) and were added by Setianingsih et al. (2017) stated that the leaves of *Eucalyptus* sp. has flavonoid, terpenoid and tannin metabolite compounds.

Percentage of Colony Growth Acceleration of *Curvularia* sp.

Accelerated growth of the fungus *Curvularia* sp. on the PDA growth medium which had been mixed with *E. grandis* boiled water, it was observed from 2 DAP to 7 DAT. Figure 2 shows that treatment B1, B2 and B3 was able to influence the accelerated growth of the *Curvularia* sp fungus colony. Based on Figure 2, it is known that all treatments experienced an increase in the growth of *Curvularia* sp fungus colonies. which was observed until 7 HSI. Figure 2 can also be observed that treatment B1 shows the percentage value of accelerated growth of *Curvularia* sp colonies. by 64% to 82% compared to treatment B0. Treatment B2 shows the percentage value of accelerated growth of *Curvularia* sp colonies. by 54% to 69% compared to treatment B0.

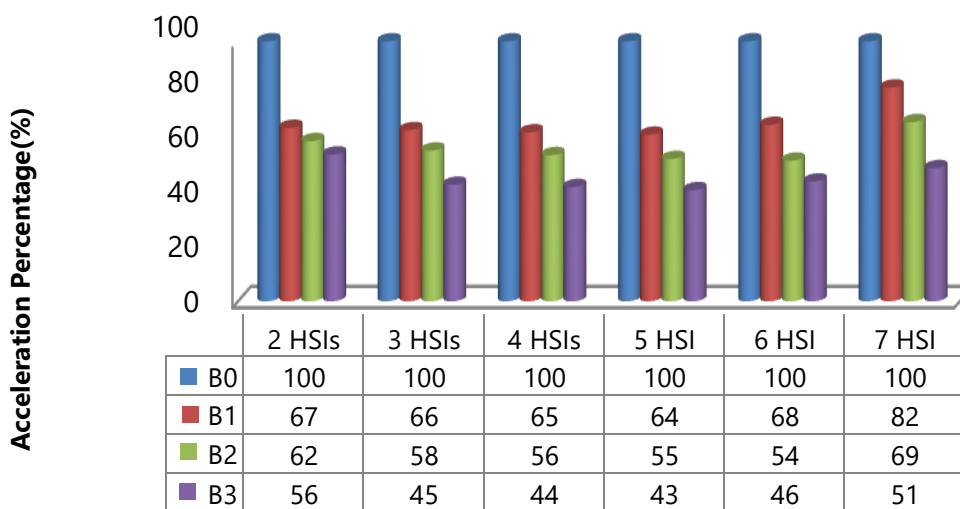


Figure 2. Percentage of colony growth acceleration.
■ B0 (control/no treatment),
■ B1 (giving boiled water from *E. grandis* leaves 0.5 ml),
■ B2 (giving waterdecoction of *E. grandis* leaves 1 ml) and grandis1.5 ml)
■ B3 (giving boiled water from *E* leaves.

The best treatment was obtained by B3 which showed the percentage of inhibition of *Curvularia* sp colonies. by 43% to 56% compared to treatment B0. This states that the provision of boiled water from *E. grandis* leaves has an effect in slowing down the percentage of accelerated growth of the *Curvularia* sp fungus colony. Especially the B3 treatment showed a greater influence compared to the B2 and B1 treatments from 2 DAS to 5 DAS. Furthermore, at 6 and 7 DAT in treatments B1, B2, and B3 there was an increase in the percentage of accelerated fungal colony growth. It is suspected that secondary metabolite compounds in boiled water are only able to inhibit up to 5 HSI (Hidayat 2022). These results also explain that the more treatment with boiled water from *E. grandis* leaves, the wider the growth of the *Curvularia* sp colony. lower on PDA media. Kurniawan (2022) stated that the content of metabolite compounds increases as the concentration of boiled water increases so that its ability to inhibit microbial growth becomes higher.

The low percentage of growth acceleration for colonies treated with B3 is thought to be due to the secondary metabolite compounds contained in *E. grandis* leaves which are able to inhibit and damage the work of the *Curvularia* sp colony cells. so that the percentage of colony growth becomes low. Hidayat (2022) stated that secondary metabolite compounds are able to inhibit and damage the work of *Curvularia* sp colony cells. Ragasa et al. (2015) reported that the leaves of *Eucalyptus* sp. generally contain phenolic chemical compounds, flavonoids, terpenoids and tannins. The chemical compounds contained in the leaves of *Eucalyptus* sp. is a compound that

can damage fungal cells and fungal cell membranes. Phenolic compounds have a tendency to bind proteins, thereby disrupting fungal metabolic processes (Dalimunthe et al. 2016). Flavonoid compounds can cause damage to the permeability of fungal cell walls, microsomes and lysosomes. Flavonoid compounds can also cause changes in organic components and nutrient transport which will ultimately result in toxic effects on fungi. Disruption of cell membrane permeability can cause the cell to be unable to carry out living activities so that its growth is hampered (Malik et al. 2019).

Percentage of Colony Inhibition of *Curvularia* sp.

Observation of the percentage of colony inhibition of *Curvularia* sp. observed from 2 to 7 DAP. The results of the data on the percentage of colony inhibition of *Curvularia* sp. can be seen in Table 2. Based on Table 2, it shows that treatments B1, B2 and B3 experienced an increase in the percentage of colony inhibition up to 5 DAP and then decreased at 6 and 7 DAT. The B3 treatment percentage showed the highest percentage in inhibiting the growth of *Curvularia* sp colonies. compared to treatment B2, and B1 up to 7 DSI. Treatment B3 showed an inhibition percentage value of 57% at 5 DAP. Treatment B2 shows the percentage value of inhibition of growth of *Curvularia* sp colonies. amounted to 45% at 5 DAT and treatment B1 showed the percentage value of inhibition of growth of *Curvularia* sp colonies. by 36% at 5 HSI. Furthermore, at 6 and 7 DAT in treatments B1, B2, and B3 there was a decrease in the percentage of fungal colony growth inhibition. This is thought to be because the difference in growth between the treated colonies and the control colonies was not very significant. The percentage parameter of colony growth acceleration is in line with the percentage of colony growth inhibition, where the growth percentage increases so that the inhibition percentage decreases.

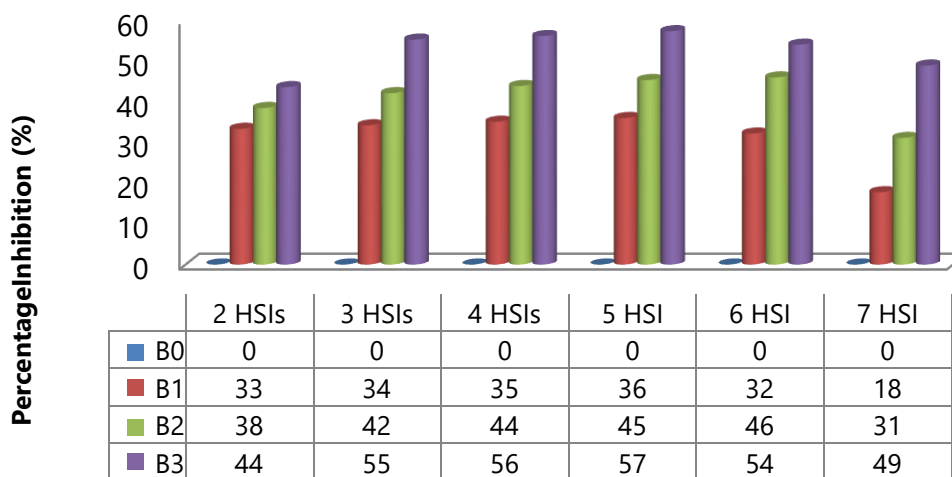


Figure 3 Percentage of colony growth inhibition. B0 (control/no treatment), B1 (giving boiled water from *E. grandis* leaves 0.5 ml), B2 (giving boiled water from *E. grandis* leaves 1 ml) and B3 (giving boiled water from *E. grandis* leaves 1.5 ml)

Curvularia sp. in vitro. The B0 treatment did not inhibit the growth of *Curvularia* sp. colonies, whereas the treatment with the addition of boiled water from *E. grandis* leaves had a growth inhibitory power value on *Curvularia* sp. colonies. A large percentage of colony growth inhibition power was obtained in treatment B3. Parameters of colony growth area of *Curvularia* sp. is very closely related to the percentage parameter of the inhibitory power of *Curvularia* sp colony growth. that the higher the treatment given, the higher the percentage of inhibition of growth of *Curvularia* sp colonies and the lower the area of growth of *Curvularia* sp colonies.

In Figure 3, B3 treatment shows a strong level of inhibitory activity, namely 57% at 5 DAP. According to Novriyanti et al. (2010) an inhibitory activity level of 50% - 75% is considered strong. This explains that B3 treatment is the best treatment capable of inhibiting the growth of *Curvularia* sp colonies. The secondary metabolite content in B3 treatment is thought to cause high inhibition of *Curvularia* sp. colonies. Setianingsih et al. (2017) reported that the compounds contained in the leaves of *Eucalyptus* sp. It is antifungal because it contains essential oils and contains chemical compounds flavonoids, tannins and terpenoids. Soegianto (2019) stated that phenolic secondary metabolite compounds are also contained in the leaves *E. grandis*, phenolic compounds can inhibit the growth of fungal cells. Nuria (2009) stated that flavonoid compounds can be called antifungal, because these compounds denature proteins, disrupt the lipid layer, and cause cell wall damage. The substance dissolves easily so it can damage fungal cell membranes and is followed by the release of intracellular compounds. Meanwhile, tannin compounds are compounds that can damage the main components of cell walls consisting of chitin, glucan and lipids so that they can inhibit the growth of fungi. Ismaini (2011) also reported that terpenoid compounds are compounds that have an antifungal function by inhibiting fungal growth, either through the cytoplasmic membrane or disrupting the growth and development of fungal spores.

CONCLUSION

Based on the results of the research that has been carried out, it can be concluded that boiled water from the leaves of *E. grandis* clone CGP 066 has an effect in inhibiting the growth of the fungus colony *Curvularia* sp. from 2 HSI to 7 HSI. The best concentration of boiled water from *E. grandis* clone CGP 066 leaves to inhibit the growth of *Curvularia* sp colonies. is treatment B3 concentration 1.5 ml) with an average percentage value of inhibition of the fungal colony *Curvularia* sp. 57% at 5 HSI and the level of inhibitory activity is classified as strong.

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Nutritional status of adolescent girls determined by upper arm circumference and nutrition consumption habits

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Abstract: The nutritional status of adolescents, especially adolescent girls, is one of the indicators of reproductive health status. This status is an important issue because it is closely related to the quality of the next generation. The size of the upper arm circumference and nutritional consumption habits are some of the indicators of nutritional status assessment. The purpose of this study was to assess the nutritional status of adolescent girls based on body mass index in terms of upper arm circumference and 2 x 24-hour recall of nutritional consumption habits based on the contents of my plate. An observational study with a cross-sectional design was applied to this study involving 380 randomly selected Metro City adolescent girls. Based on nutritional status, 43.43% of adolescent girls have poor nutritional status, underweight nutritional status is more dominant in adolescent girls (31.86%) compared to overweight and obese nutritional status, 30.26% of adolescents have MUAC less than 23.5 cm. As many as 55.79% of adolescent girls have poor nutritional habits. Efforts are needed to assist and increase awareness of adolescent girls in implementing balanced nutritional consumption.

Keywords: Adolescents; Nutritional Status; MUAC; Nutrient Consumption

INTRODUCTION

Problems with nutritional status are one of the contributors to the emergence of reproductive health problems in adolescents. The triple burden of nutrition problems (triple burden) is stunting, wasting, and obesity as well as micronutrient deficiencies such as anemia. All three conditions are found in adolescents. Based on the 2018 Riskesdas, the prevalence of anemia in adolescents reached 32%, stunting reached 26.92%, chronic energy deficiency (CED) at 36.3% and obesity reached 4% (Ministry of Health, 2019). Another problem found in adolescents is that the teenage pregnancy rate (15-19 years) reached 26.64/1000 KH and 19.6% were unwanted pregnancies (BPS, 2023).

These adolescent nutrition problems, if not resolved immediately, will have an impact on the next generation. A 27.3% reduction in pregnancy rates among obese women was reported (Kupka et al., 2011). Women who are obese before pregnancy have lower concentrations of micronutrients. This condition is certainly very dangerous for the mother and fetus if pregnancy occurs (Yang et al., 2021). Women with obesity conditions cause an increased risk of infertility (Zhu, L., et al, 2022) as well as complications during pregnancy and childbirth such as cases of gestational diabetes and gestational hypertension (Broughton & Moley, 2017). Another threatening impact is the incidence of abortion (Gualdani, E., et al, 2021), and the increased incidence of macrosomia in the resulting fetus (Pereda, J., et al, 2020).

On the other hand, when women are underweight (thin), it triggers the occurrence of CED and is associated with the incidence of anemia (Lipoeto et al., 2020). Women who experience CED produce more anemic children, have the opportunity to give birth to premature babies,



produce low birth weight babies and even stunting (BKKBN, 2021; Kulasekaran, 2012). Meanwhile, pregnant women with anemia will increase the incidence of premature birth, prolonged labor, and cesarean section (Tian et al., 2022).

Efforts to eradicate nutritional problems such as obesity, CED, and anemia in adolescents include confirming the underlying causes of these problems and understanding the early symptoms that arise. It was reported that MUAC is one of the indicators to determine nutritional status in children and adults but has not been applied to adolescents (Jeyakumar et al., 2013). In addition, if the measurement is done correctly and thoroughly, it will provide accurate results (Musa, I. R., et al, 2023). Another condition states that nutrient consumption is one of the causes of problems in nutritional status. Malnutrition includes a range of conditions related to deficiency, excess, or imbalance of nutrient intake including poor diet and anemia (Paramastri et al., 2021; WHO, 2024). Based on these facts, it is necessary to ask whether MUAC can be used as an early marker of nutritional status problems and whether nutritional consumption is the cause of malnutrition in adolescents. Therefore, this study aims to analyze MUAC and nutrient consumption as indicators of the causes of nutritional status in adolescents.

METHODS

This study is an observational study by applying a cross-sectional design. Activities were carried out from May to November 2023. Several points of youth activity centers in Metro City were determined as sampling locations. This research was approved by the Research Ethics Committee of the Poltekkes Kemenkes Tanjung Karang number 304/KEPK-TJK/V/2023 dated May 4, 2023, and permission to conduct research from the Metro City Health Office numbered 074/5553/D-02/05/2023 retrieved from June 23, 2023.

Population and Sample

The study population was adolescent girls aged 15-19 years. The sample size calculation is determined based on the population estimation formula in a limited population (Murti Bhisma, 2018). Based on the results of these calculations, the number of samples involved was 380 adolescent girls in Metro City. Randomly selected and participated voluntarily.

Variables

The variables in this study are nutritional status based on BMI assessment, upper arm circumference size, and nutritional consumption assessed based on the last 2 x 24-hour recall. Based on the results of previous studies, it was reported that MUAC and nutritional consumption have a positive correlation with nutritional status (Sisay et al., 2020; Lillie et al., 2019; Aljuraiban et al., 2015).

Procedure

Interviews were used to obtain primary data on nutritional consumption and an anthropometry examination to obtain MUAC, and BMI data. An interview guide was developed to obtain information on nutrient consumption which focused on recalling 2x in 24 hours all foods consumed and rated based on the standard contents of my plate. Anthropometry data from the examination were recorded in an observation sheet. This data consisted of height, weight, MUAC and BMI calculation.

Statistical analysis

The results of the study in the form of data sets obtained were then analyzed using the help of Excel window program computer software.

RESULTS AND DISCUSSION

Respondent Characteristics

Table 1 is a description of the characteristics of respondents who participated in the research, a total of 380 adolescent girls in Metro City.

Table 1. Characteristics of Respondents Based on Physical Condition

No.	Item pengamatan	Mean	Minimum	Maximum	Standard Deviation
1.	Age	16,9	15	19	1,52
2.	Weight	50,59	32	92	9,62
3.	Height	156,15	135	179	5,63
4.	BMI	20,72	13,67	37,94	3,61
5.	MUAC	25,16	17	34	3,17

Source: Primary Research Data

The results of the analysis describing the characteristics of Metro City teenagers who participated showed that the average age of participating teenagers was 16.9 years. Apart from that, it is also known that there are teenagers who have a height of 135 cm, a BMI value of 13.67 kg/m², MUAC of 17 cm. According to developments, adolescent girls aged 15 years have at least a BMI of 20.2 kg/m², the minimum is 14.5 kg/m² (Kemenkes RI, 2020). Body weight is 40.6 kg and height is 149.8 cm (Kemendikbud, 2020). Based on standards, if analyzed globally, adolescent girls aged 15 years, all of these values are below normal values.

Mid – Upper - Arm Circumference (MUAC)

The MUAC variable is assessed based on the standard, namely 23.5 cm. If MUAC <23.5 cm is found then it is grouped in the deficient category. The Figure 1 are the results of MUAC measurements grouped based on normal limit values.

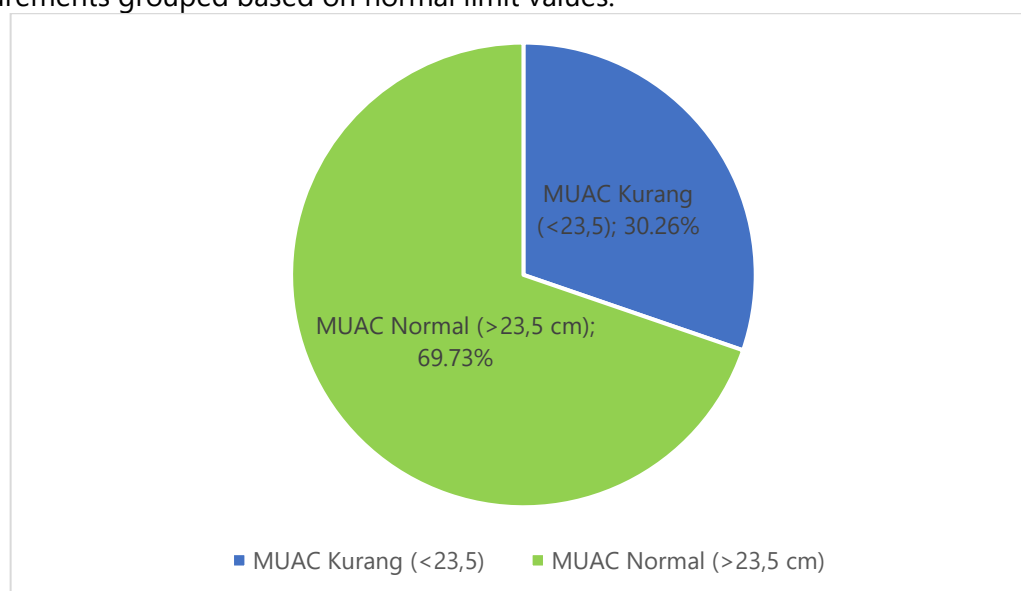


Figure 1. Distribution of Adolescent MUAC measures

The results of this study reported that 30.26% (115 adolescents) had a MUAC <23.5 cm. One measure that describes healthy physical condition and focuses on nutritional status is MUAC. This size is an indicator of malnutrition, especially for individuals whose weight and height are unknown in epidemiological and clinical studies (Chaudhry et al., 2023; Mishra, K. G., et la, 2020; Benítez Brito et al., 2016).

MUAC in women of childbearing age, including adolescents, is used as a measure to identify the risk of CED cases. This is a condition where women suffer from a lack of energy for a long time (Fibrila Firda. F, et al, 2023). If a woman suffering from CED becomes pregnant, she will have a big chance of giving birth to a baby with premature birth, low birth weight and even stunting (BKKBN, 2021). Of course, if this condition is not handled properly it will have an impact on the quality of the next generation.

MUAC is a simple non-invasive measurement method. This measure has been used to screen cases of malnutrition in children and adults but has not been applied to adolescents (Jeyakumar et al., 2013). MUAC is an anthropometric measurement that can be carried out by anyone, has good accuracy results, and can be adapted for community-based screening of underweight adolescents (Musa, I. R., et al, 2023). Compared with other methods, using MUAC as a screening tool to assess malnutrition has the advantages of using simple equipment, being easy to carry to field locations, even to locations that are geographically difficult to reach, being insensitive to changes during pregnancy, and being effective in assessing nutritional status. If the measurements are carried out carefully and precisely. Another advantage is that it is easy to socialize and does not require special training or calculations. This can help health workers at the primary level who are in environments with limited resources to obtain fast data (Mishra, K. G., et al, 2020; Thorup et al., 2020).

Based on the literature and the results of this research, MUAC can be used as an initial marker to predict early and quickly an individual's nutritional status. Apart from being easy, MUAC is very effective to implement. It is important to agree on this because by using MUAC as an initial indicator in determining nutritional status, we can empower teenagers to carry out initial screening independently to assess nutritional status through MUAC measurements.

Nutrient consumption

The nutritional consumption variable is assessed based on the teenager's daily food consumption habits based on the contents of my plate. The analysis results were grouped into good and bad categories based on the mean value in the group. The following analysis results are presented in Table 2.

Table 2. Distribution of Nutrition Consumption Status for Young Women in Metro Cities in 2023

No.	Category	Frequency	Percentage
1.	Good	168	44,21
2.	Not Good	212	55,79
Total		380	100

Source: Primary Research Data

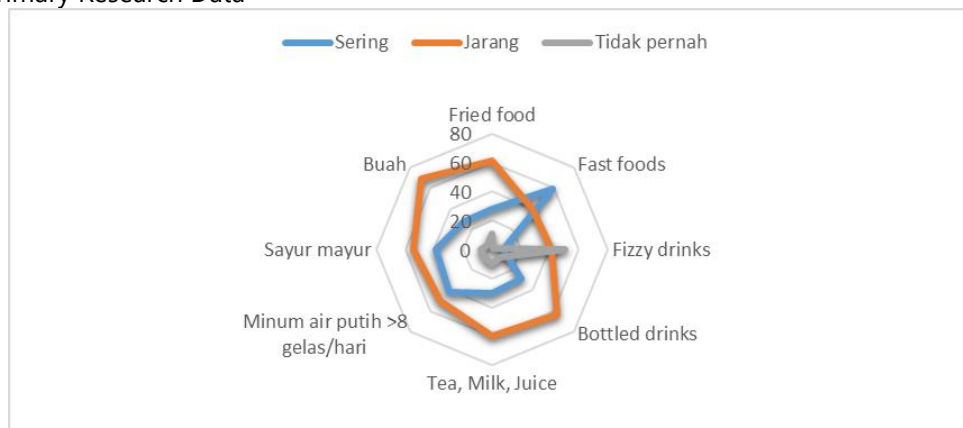


Figure 2. Distribution of Adolescent MUAC measures

The results of the analysis reported that 55.79% of young women had a history of poor nutritional consumption as assessed based on the composition of the contents of my plate. This habit is exacerbated by the behavior of adolescents who have unhealthy eating and drinking habits. The Figure 2 are the types of food and drinks consumed by teenagers.

The results of this study reported that 55.79% of adolescents had a history of consuming poor nutrition. This condition is supported by consumption behavior such as poor eating patterns and not paying attention to the nutritional content of what is consumed. A total of 58.94% (224 respondents) consumed fast food/junk food more often, 28.94% (110 respondents) consumed packaged drinks and 44.21% (168 respondents) stated that they did not drink enough water a day (<6 glasses currently per day). If this bad nutritional consumption behavior is not corrected, it can certainly have an impact on the health status of young women.

Currently, the teenage generation is growing up in a time of changes in the food environment, where nutritional problems in the form of micronutrient deficiencies and food insecurity continue to occur. The problem of undernutrition and overnutrition is increasing. It is important for women, especially adolescent girls, to have good nutritional status at all stages of their growth. This is because the risk of malnutrition in women occurs throughout their life cycle, including across generations (Das et al., 2018). Based on this study, it is very important to provide education to adolescents about the importance of having good nutritional status in preparation for pre-conception.

Nutritional status

Nutritional status is grouped based on the results of BMI calculations. The nutritional status grouping is based on the following criteria; Thin category = BMI <18.4 > 27, Normal = BMI 18.5 – 25 kg/m², overweight = BMI 25.1 – 27 kg/m², obesity = BMI > 27 kg/m² (RI Ministry of Health, 2019). Figure 3 are the results of calculating the nutritional status of 380 adolescent girls in Metro City.

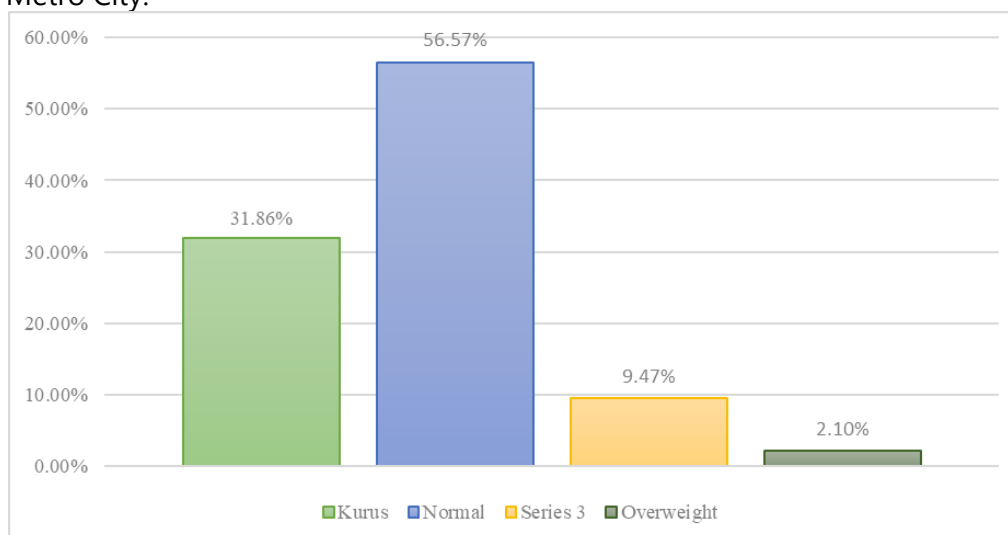


Figure 3. Distribution of nutritional status of adolescent girls

The results of the analysis show that underweight nutritional status is more dominant in adolescents (31.86%) compared to overweight and obese nutritional status. In adolescents, physical growth and mental, cognitive, and psychological development are still ongoing. When nutrition in this phase is not met, it can cause disruption and obstacles in adolescent growth (Purtiantini, 2023). Body mass index (BMI) is an important indicator for assessing human body metabolism including nutritional status (Nainggolan et al., 2022).

Obesity is a body condition with a BMI of more than 30 kg/m². This condition is associated with an increased risk of miscarriage and obstetrics including neonatal complications (Aviram et al., 2011). Women who are obese before pregnancy tend to have lower micronutrient concentrations and are more likely to experience micronutrient deficiencies during pregnancy which are dangerous for the mother and baby (Yang et al., 2021). Previous research reports that obesity increases the risk of complications during pregnancy such as gestational hypertension and gestational diabetes (Broughton & Moley, 2017), as well as having effects that require attention on the fetus being born (Zhu, L., et al, 2022; Gualdani, E., et al, 2021; Otero-N, et al, 2021; (Vats H, et al, 2021; Pereda, J, et al, 2020). Low BMI and limited calorie and protein intake can cause a decrease in Gonadotropin-releasing hormone (GnRH), a hormone that plays an important role in reproductive health. If it continues, this detrimental condition will not only impact adult women but also adolescents (Hoffman et al., 2011). Previous research has proven that BMI is significantly correlated with MUAC (Mishra, K. G., et al, 2020), and nutritional intake has an impact on nutritional status (Rachmayani S.A, et al, 2018).

CONCLUSION

Cases of malnutrition among adolescent girls in Metro City who participated in this research are still high. This information is supported by the large number of adolescents who have MUAC that is less than standard and most of them have nutritional consumption habits that do not match the standard contents of my plate. MUAC and nutritional consumption can be used as initial indicators to detect cases of nutritional status. Therefore, it is necessary to increase socialization of the contents of my plate as a prevention effort and teach adolescents how to measure MUAC so they can carry out early detection independently.

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Antibacterial activity test of n-hexane, ethyl acetate, and water fractions of the flat-top mille graines (*Hedyotis corymbosa L*) herb against the growth of the propionibacterium acnes bacteria

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Abstract: Acne, a chronic obstructive and inflammatory skin condition affecting pilosebaceous units, is often linked to *Propionibacterium acnes*, a bacterium that disrupts the stratum corneum and stratum germinativum by secreting sebum, leading to damage in the walls of skin pores. This study aims to identify the chemical compounds present in the n-hexane, ethyl acetate, and water fractions of flat-top mille graines or diamond flower, locally known as rumput mutiara (*Hedyotis corymbosa L.*) herbal extract. Additionally, it seeks to determine the optimal concentration and the fraction exhibiting the most potent antibacterial activity against *Propionibacterium acnes*, with the aim of inhibiting bacterial growth associated with acne. This study employed laboratory experimental methods. Extraction was conducted through the maceration method using ethanol solvent. Fractionation was achieved through liquid-liquid extraction using n-hexane, ethyl acetate, and water solvents. Phytochemical screening and inhibition tests were performed using Clindamycin as the positive control and DMSO as the negative control. Data analysis involved the One-Way ANOVA method followed by the LSD test for further analysis. Phytochemical screening of the flat-top mille graines (*Hedyotis corymbosa L.*) fractions revealed positive results for various compounds. The n-hexane fraction contained flavonoid and triterpenoid compounds, the ethyl acetate fraction exhibited tannin, saponin, flavonoid, and steroid compounds, while the water fraction contained alkaloids, tannins, saponins, flavonoids, and steroids. In terms of antibacterial activity against *Propionibacterium acnes*, the n-hexane fraction at a concentration of 15% displayed a medium inhibition zone diameter of 8.6 mm, whereas the ethyl acetate and water fractions both exhibited strong inhibition zones with diameters of 16.6 mm at the same concentration. The optimal concentration for inhibiting *Propionibacterium acnes* was found to be 15% for both the ethyl acetate and water fractions. Formulation of the herbal fractions of flat-top mille graines (*Hedyotis corymbosa L.*) is recommended based on these findings.

Keywords: Flat-Top Mille Grains; Fractions; *Propionibacterium*.

INTRODUCTION

Acne, commonly known as pimples, is a prevalent skin condition among teenagers and young adults. It is a chronic obstructive and inflammatory disease of the pilosebaceous unit. The primary factors contributing to acne development include heightened sebum production by the skin's oil glands, the accumulation of keratinocytes, and bacterial growth within the pilosebaceous ducts, which are naturally present in healthy skin (Movita, 2013).

Propionibacterium acnes, commonly known as *P. acnes*, is one of the bacteria responsible for acne. It is a gram-positive, pleomorphic, and aerotolerant anaerobic bacterium that natu-



rally resides on the skin as part of its normal flora. *P. acnes* contributes to acne development by producing lipase enzymes, which break down free fatty acids from skin lipids, leading to inflammation. This inflammatory response promotes the proliferation of these bacteria and exacerbates inflammatory lesions by stimulating the production of pro-inflammatory cytokines (Fauzi et al., 2014).

Acne is most prevalent between the ages of 16 and 17, affecting approximately 83-85% of women and 95-100% of men. Various factors contribute to acne, including genetic, racial, seasonal, psychological, hormonal, or bacterial factors. However, bacterial infections are generally considered a primary cause of acne, with *Propionibacterium acnes* being one of the key bacteria responsible (Latifah, S. and Kurniawaty, 2015).

The typical approach to treating acne involves the use of antibiotics, which are medications designed to combat bacterial infections by either killing bacteria (bactericidal) or preventing their multiplication (bacteriostatic) (Indonesian Ministry of Health, 2015). Based on their chemical structure, antibiotics are divided into several groups, including Beta-Lactams, aminoglycosides, tetracyclines, sulfonamides and trimethoprim, macrolides, lincomycin, quinolones, and chloramphenicol. Clindamycin, classified as a macrolide antibiotic, is particularly effective against gram-positive bacteria. Its molecular formula is $C_{18}H_{33}C_{1}N_{2}O_{5}S$, with a molecular weight of 424.98302. Clindamycin is a semisynthetic antibacterial agent, structurally analogous to lincomycin (Muchtarmah, 2016). The mechanism of action of clindamycin involves reversible binding with the 50S ribosomal subunit, hindering peptide bond formation and thereby inhibiting bacterial protein synthesis. Whether clindamycin exerts a bacteriostatic or bactericidal effect depends on factors such as drug concentration, the type of infection, and the organism involved (Sa'adah & Nurhasnawati, 2015). While clindamycin effectively inhibits protein synthesis in bacteria and targets *P. acnes* on the skin surface, prolonged antibiotic use can lead to bacterial resistance. Resistance occurs when bacteria no longer respond to antibiotics that were previously effective, rendering them ineffective for clinical use (Mulyani et al., 2016).

The rise of bacterial resistance to antibiotics due to inappropriate use underscores the need for alternative treatments, prompting exploration into the potential antibacterial properties of plants. Among these, flat-top mille grains or diamond flower, locally known as rumput mutiara (*Hedyotis corymbosa* L.) has garnered attention for its antibacterial potential. Therefore, this study aims to elucidate the inhibitory properties of different fractions and concentrations of flat-top mille grains extract in inhibiting the growth of *Propionibacterium acnes*.

METHODS

This study involved in five main stages, which included plant identification and preparation, extraction, fractionation, antibacterial testing, and analysis.

Plant Identification and Sample Preparation Stage

The identification process was conducted to confirm that the acquired plants were indeed flat-top mille grains (*Hedyotis corymbosa* L.) specimens, which were located at the Phytochemical Pharmacognosy Laboratory, Mandala Waluya University. Subsequently, the collected samples were dried under sunlight. Once completely dried, the leaves were pulverized into a fine powder using a blender, followed by extraction.

Extraction Stage

A total of 800 grams of flat-top mille grains herb powder was placed into a container along with ethanol solvent using in a ratio of (1:2). The extraction process was conducted over 3

cycles, each lasting 24 hours, employing maceration with stirring. Following the completion of the maceration process, the mixture was filtered using a flannel cloth. Subsequently, the filtrate was evaporated using a rotary evaporator at a temperature of 50°C, followed by further drying in a hairdryer until a thick extract was obtained. Finally, the yield of the flat-top mille grains herbal extract was calculated.

Fractionation Stage of Flat-Top Mille Graines Herbs

This fractionation employed a liquid-liquid partition method, where the dissolved extract was placed into a separating funnel and mixed with solvents based on their polarity. Three solvents were used: n-hexane, ethyl acetate, and water. The process begun by weighing the flat-top mille grains herb extract. Then, 60 grams of the extract was dissolved in 600 mL of water and combined with the n-hexane solvent. After shaking and allowing it to settle for 10-15 minutes, two distinct layers form: the n-hexane layer and the water layer. The n-hexane layer is then separated and collected in an Erlenmeyer flask. Next, the water layer is returned to the separating funnel, and ethyl acetate solvent is added. The mixture is shaken and allowed to settle, resulting in the formation of the ethyl acetate layer and the water layer. These layers are separated and collected in separate Erlenmeyer flasks to obtain the n-hexane, ethyl acetate, and water fractions. The fractions are then concentrated using a rotary evaporator and further dried with a hairdryer until thick fractions of n-hexane, ethyl acetate, and water are obtained (Hepni, 2019).

Fractionation of flat-top mille grains herb Chemical Content of n-Hexane Fraction, Ethyl Acetate, and Water of Flat-Top Mille Graines Herb:

- a. Alkaloids represent a group of fundamental compounds characterized by their basic nature, typically comprising one or more nitrogen atoms arranged in cyclic structures. Their presence can be identified through precipitation tests such as the Mayer, Dragendroff, and Bouchardat tests. While the majority of alkaloids exist in solid crystal form, some are liquid at standard room temperature. They exhibit optical activity by rotating the plane of polarization and often possess a bitter taste (Harborne, 1987)
- b. Steroid/Triterpenoid The test for steroids and triterpenoids relies on their capacity to produce specific colors when mixed with concentrated H₂SO₄ in an acetic anhydride solvent. Terpenoids typically exhibit a red-orange or purple coloration, while steroids manifest a blue color. The test for steroids and triterpenoids relies on their capacity to produce specific colors when mixed with concentrated H₂SO₄ in an acetic anhydride solvent. Terpenoids typically exhibit a red-orange or purple coloration, while steroids manifest a blue color (Simaremare, 2014).
- c. Saponins are characterized by having both hydrophilic and hydrophobic components. When shaken, saponins produce foam due to the hydrophilic groups binding to water while the hydrophobic groups bind to air. In the micelle structure, the polar groups faces outward while the non-polar groups faces inward. The presence of saponins is typically confirmed by the formation of stable foam upon shaking. However, in this analysis, the sample did not produce foam, indicating the absence of saponins. Generally, if the result is positive for saponins, the addition of HCl₂N is intended to enhance polarity, resulting in more stable bonding of the hydrophilic groups and the formation of stable foam (Simaremare, 2014).
- d. Flavonoids Flavonoids can be identified through a test involving the addition of magnesium powder and hydrochloric acid. This reaction typically results in the reduction of flavonoid compounds, leading to a red coloration. However, in this test, the reaction was negative, as the magnesium powder failed to induce the reduction reaction in the

flavonoid compounds, resulting in no change in the color of the test solution (Robinson, 1995).

- e. Tannins and Polyphenols Screening for polyphenols/tannins involves the use of iron (III) chloride reagent. When 10% FeCl₃ is added, it is expected to result in a dark blue, blackish blue, or greenish-black coloration if polyphenol/tannin compounds are present. However, in this test, no color changes occurred upon the addition of FeCl₃, indicating the absence of hydroxyl groups in the tannin compounds.

Antibacterial Activity Testing

Tool Sterilization

The purpose of sterilizing tools and materials is to eliminate microorganisms. This process involved cleaning the tools thoroughly and then drying them. Glassware such as petri dishes, beakers, and test tubes were wrapped in paper and sterilized in an oven at a temperature ranging from 160°C to 180°C for 1-2 hours. On the other hand, media was sterilized using an autoclave at 121°C for 15 minutes.

Nutrient Agar (NA) Media Preparation

The Nutrient Agar (NA) media was prepared by dissolving 3.8 grams of NA powder in 188 ml of distilled water. The solution was heated in an Erlenmeyer flask until completely dissolved. Once dissolved, the flask was sealed with cotton and covered with aluminum foil. Subsequently, the NA media was sterilized using an autoclave at 121°C for 15 minutes, making it ready for the cultivation of *Propionibacterium acnes* bacteria.

Bacterial Suspension Preparation

5 mL of Nutrient Agar (NA) media was dispensed into a test tube. Each pure culture of *Propionibacterium acnes* bacteria was streaked onto the NA medium in the test tube and tilted at an angle of 30-40°C before allowing it to solidify. The inoculated tubes were then incubated at a temperature of 35-37°C for 24 hours. Following this, a suspension was prepared by extracting 10 mL of NaCl with a sterile syringe and transferring it to a test tube. The bacterial culture was then transferred into the NaCl solution. This bacterial suspension was now ready for use in the antibacterial activity testing.

Positive Control and Negative Control Preparation

The positive control (+) employed was Clindamycin at a concentration of 0.03 mg, which was dissolved in 2 ml of distilled water during preparation. The Negative Control Solution (-) consisted of 21 ml of DMSO solution, with 3 ml aliquoted into each vial.

Antibacterial Activity Testing for Fractions- n-Hexane, Ethyl acetate, and Water of flat-top mille graines (*Hedyotis corymbosa* L.).

3.8 grams of NA media were carefully weighed and then added to an Erlenmeyer flask containing 188 mL of sterile distilled water to dissolve. The mixture was heated using a spirit lamp until it reached boiling point and became uniformly mixed. Subsequently, it was sterilized in an autoclave at 121°C for 15 minutes under pressure of 1 atm (Safitri & Novel S, 2010). Next, a bacterial suspension was prepared by transferring 10 mL of 0.9% NaCl solution into a test tube. Then, one culture of *Propionibacterium acnes* bacteria, which had been rejuvenated in slanted NA media, was transferred into a test tube containing 0.9% NaCl solution. The solution was then thoroughly mixed until a uniform bacterial suspension was obtained.

In the antibacterial activity testing using the well method, the test solution was prepared by dissolving the flat-top mille graines herb fraction in two different concentrations: 10% and 15%, using DMSO solution. DMSO was also utilized as a negative control. To create each concentration series, DMSO solution was added to several grams of the flat-top mille graines herb fraction until the volume reached 3 mL. Additionally, a positive control for the antibacterial test was prepared using clindamycin 0.03 mg dissolved in 3 mL of distilled water. The antibacterial activity test proceeded as follows: Initially, 15 mL of sterile Nutrient Agar (NA) was poured into a test tube, to which 1 mL of bacterial suspension was added and homogenized. The mixture was then transferred to a petri dish and allowed to solidify. Subsequently, an inhibition test was conducted by creating a well in the solidified medium using the tip of a sterile dropper pipette. The test solutions of the n-hexane fraction, ethyl acetate, and water extract of flat-top mille graines (*Hedyotis corymbosa* L.) herb, with concentrations of 10% and 15%, were added into the wells, along with the positive control clindamycin and the negative control DMSO. Each petri dish was then incubated in an incubator at 37°C for 24 hours. After incubation, the petri dishes were removed from the incubator, and observations were made to assess the formation of a clear zone around the well. The diameter of the inhibition zone was measured as an indicator of antibacterial activity.

Processing and data analysis

The One-Way ANOVA analysis test was conducted using SPSS 20 to compare the diameter of the inhibition zone among the positive control, negative control, and all treatments, based on the concentration of n-hexane, ethyl acetate, and water fraction extracts from flat-top mille graines (*Hedyotis corymbosa* L.) on the growth of *Propionibacterium acnes* bacteria.

RESULTS AND DISCUSSION

The determination of the Flat-Top Mille Graines Herb (*Hedyotis corymbosa* L.) was conducted at Mandala Waluya University. This determination aimed to confirm the identity of the plant samples used in the research. The results confirmed that the plant utilized in this study was indeed the Flat-Top Mille Graines Herb (*Hedyotis corymbosa* L.).

The simplicia of flat-top mille graines herb (*Hedyotis corymbosa* L.) was extracted using the maceration method with ethanol solvent, and evaporated to produce a thick extract weighing 68.8 grams. The percent yield was calculated as follows:

Table 1. Results of Flat-Top Mille Graines (*Hedyotis corymbosa* L.) Herb Extraction

Sample	Weight of Simplicia (g)	Weight of Extract (g)	Extraction Yield (%) b/b
Flat-top mille graines herb	800 g	68.8 g	8.6%

Yield of n-hexane, ethyl acetate, and water fractions of flat-top mille graines (*Hedyotis corymbosa* L.) herb

Table 2. Yield results of n-hexane, ethyl acetate and water fractions of *Hedyotis corymbosa* L

Sample	Weight of Extract (g)	Weight of Fractions (g)	Extraction Yield (%) b/b
N-hexane fraction		7.5 g	12.5 %
Ethyl acetate fraction	60 g	1.2 g	2 %
Water fraction		22 g	36.6%

The fractionation process from 60 grams of extract yielded 7.5 grams of the n-hexane fraction, accounting for 12.5% of the total yield, 1.2 grams of the ethyl acetate fraction, constituting 2% of the total yield, and 22 grams of the water fraction, representing a total yield

of 36.6%. These values meet the required standards, as the percentage of soaked value with an initial simplicia weight of 800 grams is not less than 3.6%. For an initial weight of 1000 grams, the percentage of soaked value should be no less than 7.2%. Fraction yield is calculated by comparing the final weight (the weight of the produced fraction) with the initial weight (the weight of the extract used), then multiplying by 100%. The yield value is also related to the amount of bioactive content present in the flat-top mille graines herb (*Hedyotis corymbosa L.*) (Dewatisari et al., 2017)

Various solvents employed during the fractionation process influence the quantity of the flat-top mille graines (*Hedyotis corymbosa L.*) fractions yielded, with the water fraction exhibiting the highest yield compared to the ethyl acetate and n-hexane fractions. According to (Tursiman & Nofiani, 2012), the significant yield in the water fraction suggests the presence of numerous bioactive constituents in the flat-top mille graines (*Hedyotis corymbosa L.*) fraction with higher polarity.

Identification of the chemical compound content of fractions in flat-top mille graines (*Hedyotis corymbosa L.*) herb

Table 3. Identification results of the chemical compound content of fractions on the flat-top mille graines (*Hedyotis corymbosa L.*) herb

No	Reactor	Observation	Fraction results		
			n-hexane	Ethyl Acetate	water
1 Alkaloid 1	Dragendorff	A yellow-red precipitate is formed	-	-	+
Alakaloid 2	Mayer	A white-yellow precipitate is formed	-	-	+
Alakaloid 3	Wagner	A brown precipitate forms and a color change occurs	-	-	+
2 Flavonoids	Concentrated HCl + Mg powder	A red, yellow or orange solution is formed	+	+	+
3 Saponin	Hot Water + HCL2N	10 cm high foam is formed	-	+	+
4 Tanin	FeCl3	A bluish black color is formed	-	+	-
5 Triterpenoid	Concentrated H2SO4	A purple ring is formed	-	-	-
6 Steroid	Glacial acetic acid + sulfuric acid	Greenish blue color change occurs	+	+	+

Information:

+ : Presence of secondary metabolite compounds.

- : Absence of secondary metabolite compounds.

Phytochemical analysis of flat-top mille graines reveals varying compositions across its fractions, with the highest concentration found in the water fraction, followed by the ethyl acetate fraction. In contrast, the n-hexane fraction contains only flavonoids and steroids. This disparity in composition is attributed to the differential solvent capabilities in binding specific compounds contained in each extract.

Average diameter of the inhibitory zone of the fractions in flat-top mille graines (*Hedyotis corymbosa L.*) herb

Antimicrobial testing using *Propionibacterium acnes* bacteria. Antimicrobial testing against *Propionibacterium acnes* bacteria was conducted on the flat-top mille graines (*Hedyotis corymbosa L.*) fraction at concentrations of 10% and 15% using the well method. This method relies on the diffusion of antimicrobial compounds into the solid medium containing the

inoculated test microbes. Perpendicular holes are made in the solid agar previously inoculated with bacteria to facilitate the testing process.

Table 4. Results of the average diameter of the inhibitory zone of the flat-top mille grains herb fractions against bacteria

Sample	Concentrate	Average observation results (Replications / mm)				Category
		I	II	II	Average	
n-hexane	10%	7.3	7	7	7.1±0.17	Medium
	15%	8.4	9	8.4	8.6±0.34	Medium
	Clindamycin 1%	34	33.3	34	33.7±0.4	Very Strong
	DMSO 3 ml 10%	0	0	0	0	0
Ethyl Acetate	10%	14.4	13.8	14	14.6±0.3	Strong
	15%	16.4	16.4	17	16.6±0.34	Strong
	Clindamycin 1%	34	34.5	34.1	34.2±0.2	Very Strong
	DMSO 3 ml 10%	0	0	0	0	0
Water	10%	14.4	14.1	14.1	14.2±0.1	Strong
	15%	16.4	16.4	17	16.6±0.3	Strong
	Clindamycin 1%	28.5	29	29	28.8±0.28	Very Strong
	DMSO 3 ml	0	0	0	0	0

Information:

10% = Flat-top mille grains herb fractions 10% 15% = Flat-top mille grains herb fractions 15% K+ = Positive control (Clindamycin)

K- = Negative Control (DMSO)

The positive control utilized in this study is clindamycin, a commonly employed topical treatment for acne. Clindamycin works by inhibiting the growth of *Propionibacterium acnes* on the skin surface and reducing the concentration of free fatty acids present in sebum. This reduction in free fatty acid concentration may occur as a result of clindamycin's indirect action, potentially inhibiting the lipase production of *Propionibacterium acnes* in relation to triglycerides and free fatty acids, or directly interfering with the lipase production of *Propionibacterium acnes*.

Clindamycin acts on *Propionibacterium acnes* with open comedones by inhibiting its growth and also by other mechanisms such as inhibiting leukocyte chemotaxis, which can suppress inflammation in acne vulgaris *in vivo* (American Society of Health System Pharmacists, 2005: 3341). On the other hand, the negative control in this study is DMSO, as explained by (Setiabudy & Gan, 2007), DMSO lacks antibacterial or antifungal properties and therefore cannot inhibit the growth of either.

Based on the statistical analysis presented in Table 4, there exists a notable disparity in the average diameter of bacterial inhibition zones among the n-hexane, ethyl acetate, and water fractions at concentrations of 10% and 15%, as well as the positive control. Specifically, the n-hexane fraction exhibited average inhibition zone diameters of 7.1 mm (medium), 8.6 mm (medium), and 33.7 mm (very strong) for concentrations of 10% and 15%, respectively. Similarly, the ethyl acetate fraction displayed diameters of 14.6 mm (strong), 16.6 mm (strong), and 34.2 mm (very strong), while the water fraction exhibited diameters of 14.2 mm (strong), 16.6 mm (strong), and 28.8 mm (very strong). These findings suggest that the inhibition zones observed for each fraction, at both 10% and 15% concentrations, are classified as strong, with diameter values falling within the range of 11-20 mm. In comparison, clindamycin (positive control) demonstrated a very strong inhibition zone, with a diameter exceeding 20 mm. Conversely, the negative control, DMSO, exhibited an average inhibition zone diameter of 0 mm.

Variances in the inhibitory diameters formed by each fraction against *Propionibacterium acnes* bacteria indicate variations in the active compounds present in the three fractions of flat-top mille graines herb. These differences in active compounds contribute to the distinct capacities of each fraction to impede the growth of *Propionibacterium acnes*. The ability of the flat-top mille graines herb fractions in restraining bacterial growth was evidenced by the formation of clear zones around the well.

The LSD test results conducted on *Propionibacterium acnes* bacteria in the flat-top mille graines (*Hedyotis corymbosa* L.) fractions at concentrations of 10% and 15%, as well as the positive control, exhibited variances compared to the negative control, indicating antibacterial activity. Furthermore, comparisons between the 10% and 15% extract groups revealed differences, suggesting that higher concentrations yield enhanced activity. This proves that the increase in concentration is in direct correlation with activity. Additionally, comparisons between all fraction treatment groups and the positive control also exhibited disparities. The ability of the flat-top mille graines (*Hedyotis corymbosa* L.) fraction to inhibit bacterial growth is attributed to its secondary metabolite content, including phenolic compounds, flavonoids, saponins, terpenoids, tannins, and quinones. Analysis of the data using the SPSS application yielded significant results, confirming the antibacterial activity of the flat-top mille graines (*Hedyotis corymbosa* L.) fraction against *Propionibacterium acnes* bacteria.

CONCLUSION

Based on the findings of the conducted study, it can be concluded that: First, The results of phytochemical screening of the flat-top mille graines (*Hedyotis corymbosa* L.) fractions reveals positive findings. The n-hexane fraction exhibited the presence of flavonoid and triterpenoid compounds. Meanwhile, the ethyl acetate fraction displayed positive indications for tannin, saponin, flavonoid, and steroid compounds. Additionally, the water fraction demonstrated the presence of alkaloids, tannins, saponins, flavonoids, and steroids. Second, The antibacterial activity of the flat-top mille graines (*Hedyotis corymbosa* L.) fractions against *Propionibacterium acnes* bacteria was observed. Specifically, the n-hexane fraction exhibited antibacterial effects at a concentration of 15%, resulting in an inhibitory zone diameter of 8.6 mm, classified as (medium). Meanwhile, the ethyl acetate fraction at a concentration of 15% displayed a diameter of 16.6 mm, classified as (strong). Similarly, the water fraction at a concentration of 15% exhibited a diameter of 16.6 mm, also classified as (strong). These findings demonstrate the efficacy of the flat-top mille graines (*Hedyotis corymbosa* L.) fractions against *Propionibacterium acnes* bacteria. Third, The flat-top mille graines herb (*Hedyotis corymbosa* L.) fractions demonstrated optimal concentration for inhibiting *Propionibacterium acnes* bacteria. Specifically, the water fraction at a concentration of 15% exhibited a significant inhibitory effect, with a diameter of 16.6 mm, classified as (strong). Similarly, the ethyl acetate fraction at a concentration of 15% also displayed notable antibacterial activity, with a diameter of 16.6 mm, also classified as (strong). These findings highlight the efficacy of the flat-top mille graines herb fractions in combating *Propionibacterium acnes* bacteria.

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Ethnopharmacy: Indonesian Madurese traditional medicine plant in Paseseh Village

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Abstract: An ethnopharmaceutical study on the use of medicinal plants in Paseseh Village, Tanjungbumi District, Bangkalan Madura Regency, East Java aims to determine the types and parts of the plants used, the benefits and methods of processing these plants. This research is qualitative research using purposive sampling and snowball sampling using questionnaires and open interviews with traditional healers. There were 62 types of plant products used as medicine. Identification was carried out using the Plan Snab application, and 3 plants were identified at LIPI Purwodadi Botanical Garden, namely: Nirmeniran (*Deeringia amaranthoides* (Lam)) Merr, Syaraf Kelabeng (*L. Circinatum* L), Kebiul/Tenglor (*Caesalpinia* sp.). Plant parts used: leaves, roots, stems, fruit, and flowers. There are sulfur stones/betobelireng, and bricks/betoh as a concoction in medicine. The part of the plant that is widely used is the leaf (57%). The plant is used as a treatment for fever, stomach ache, and flu. Medicinal plants are processed by boiling, pounding, boiling/pounding, using immediately, burning, crushing, and extracting the sap. The most use of medicinal plants is boiled (61%). Plants are obtained by taking them around the house, buying them at the market, growing wild, and taking them from other villages. The way to get the most is to take it around the house (53%). The conclusion of this study resulted in an empirical inventory of the use of plants as traditional medicines that can be developed into phytopharmaca.

Keywords: Ethnopharmacy; Indonesian Madurese; Medicinal plants; Traditional medicine

INTRODUCTION

Indonesia is one of the countries with the most biodiversity. There are about 30,000 species of flora in Indonesian tropical forests (Elfahmi et al., 2014). Madura is one of the islands in Indonesia, that has a variety of flora and plants. These plants are widely known and used to maintain health and treat diseases. Knowledge of the manufacture of Madura's spices is inherited from time to time in a family, especially the royal family and its descendants. Drinking is introduced to children or their offspring from an early age and is more emphasized by women to take care of the body and maintain health. Madura juice is known primarily as a medicine to treat the body or to maintain health, and a small part as first aid in the treatment of a disease (Rachmawati, 2014). The island of Madura, through its compound, has the potential to accelerate the development of agriculture towards increased contributions to the increased incomes of the people now and in the future. Madura also has a reputation as one of the national spice producers whose production has been recognized nationally and even internationally (Nurlaila, 2021).



Madura's recipe comes from their ancestors, but some claim that they became spice makers after sickness and then dream about the recipe they made. Nevertheless, the ingredients or prescriptions of the spices produced are often unrecorded. A little bit of traditional medicine that documents the prescriptions they have. The limitation of knowledge and the fear that the prescription will be replicated by others are two of the reasons for the lack of such documentation.

Modernization of the culture that exists today, especially in the culture of medicine, can lead to the loss of the knowledge of traditional medicine that society possesses (Bodeker, 2000). The lack of documentation on the use of medicinal plants by certain communities makes it difficult to preserve traditional medicine (Rosita et al., 2007). Ethnopharmacy can be used to dig up local knowledge in specific communities about using plants as medicines. This study could enable research into the ingredients of traditional medicine and how they are used as cultural detectors in a particular community (Pieroni et al., 2005).

METHODS

The people of Tanjungbumi are still using a lot of traditional medicine, like in the village of Paseseh. But until now, there is still no data related to medicinal plants that are widely used as public medicine in the Tanjungbumi district of Bangkalan. Based on the above problem, ethnopharmaceutical studies will be conducted in the Bangkalan Prefecture district in Tanjungbumi village, Paseseh. This research is expected to preserve cultural heritage in terms of traditional medicine and also introduce traditional Madura medicine that is unknown to the public.

This research uses a combination of qualitative and quantitative research methods. This stage is also conducted in an open interview. The informant selection technique used in this early observation is the purposive sampling method, which is the informant selection technique with particular consideration, in this case, the person considered to be the most knowledgeable about medicinal plants (Mayasari, 2016). The characters chosen through this method to be interviewed are traditional therapists and massagers. Based on preliminary observations, the data of the prospective informant is known. After the initial observations, data on medicinal plants from traditional medicines is collected using interviews carried out with the method of snowball sampling, which is the technique of selecting informants based on the recommendations of key informants, in this case, dukun and massage makers. Information about future prospective information obtained from previous information (Mayasari, 2016) 2007). The interview technique was conducted using questionnaire media; based on the field studies carried out, informants provided information on the use of plants as medicines and continued with unstructured interviews.

RESULTS AND DISCUSSION

Based on the statistics provided by the Bangkalan district in 2017, the Tanjungbumi district covers an area of 67.49 km² and is home to a total of 14 villages with a population of 52,399 people (BPS, 2017). One of these villages is Paseseh, which is located in the Tanjungbumi district of Bangkalan on Madura Island. Madura Island is situated above the Java Islands and precisely above Surabaya on the world map. The distance between Paseseh Village and Surabaya is approximately 75 km, which can be covered by car in about 2 hours. Map of the location of the village of Paseseh district of Tanjungbumi Madura as in Figure 1.

Based on interviews conducted with (10) respondents, who are familiar with traditional medicine in the Paseseh village of Tanjungbumi district of Bangkalan, There are (62) varieties of plants used in conventional medicine. The portion of the plant used in medicine to treat a

disease, i.e., leaves, roots, stems, fruits, and flowers, has a percentage like Figure 2. The most cultivated part of the plant is 57% of the leaves. The leaves usually have high material availability. The diversity of secondary metabolites in the leaf ranges from non-polar compounds such as steroids and triterpenes to semi-polar compounds such as flavonoids to polar compounds such as polyphenols and glycosides or hydroxylated terpenoids (Saifudin, 2012). The use of leaves becomes more dominant interrelated because the leaves accumulate many secondary metabolite compounds that are useful as medicines, such as tannins, alkaloids, essential oils, and other organic compounds stored in vacuoles or additional tissues in leaves such as trichomes. There is a contention among some that leaves possess more characteristics than other plant parts.

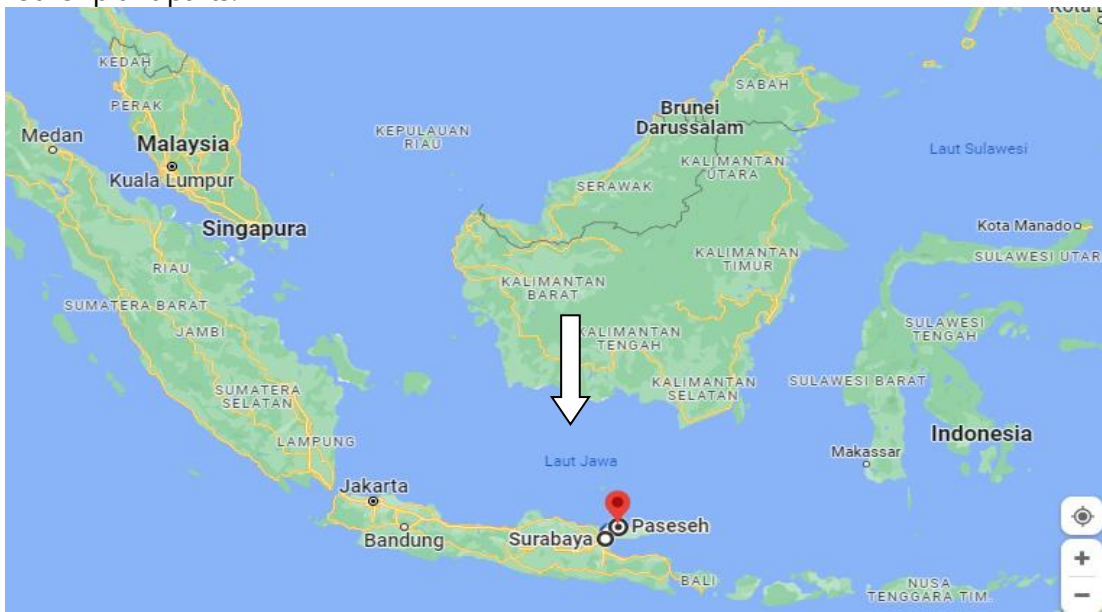


Figure 1. Map of Indonesia: Data collection location of Paseseh village of Bangkalan, Madura, East Java, Indonesia (scale = 1:200).

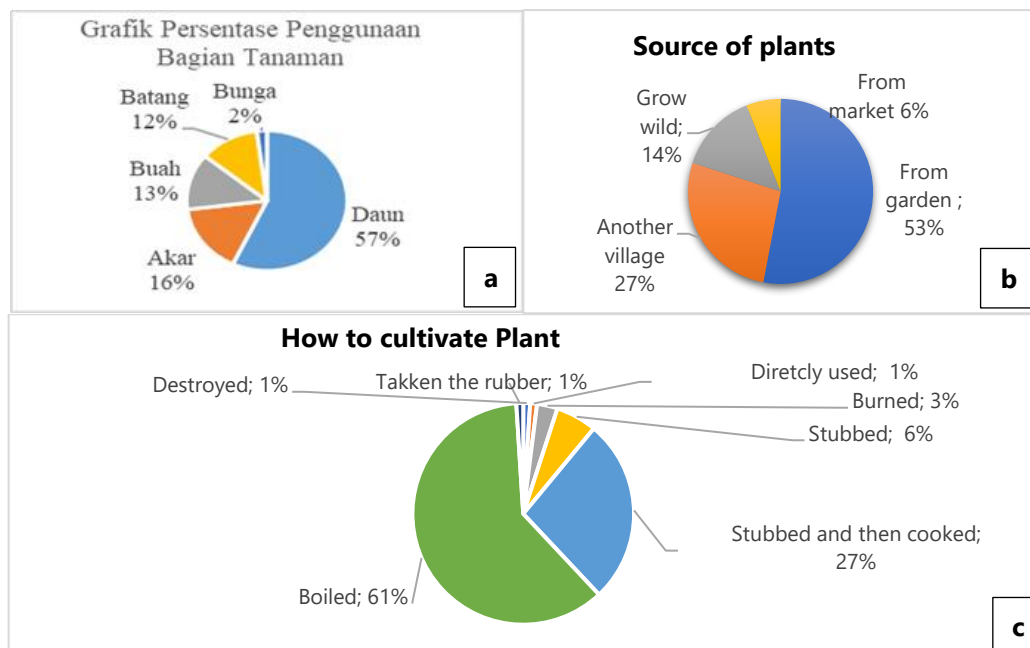


Figure 1. (a). Graph of Percentage Usage of Plant Parts for Traditional Medicine; (b) Graffic of Percentasae How to Obtain Plants; (c) Graphic of Plant Processing in Paseseh Village, Madura, Indonesia.

The methods of treatment include direct use, burning, damaging, boiling, crushing, and taking rubber. The most common treatment is boiling, which accounts for 61%. Boiling is the most effective way to use it, and besides being easy to do, it can also bore unwanted bacteria. The refining process needs to pay attention to the resistance of the active ingredient to heat to prevent damage to the bioactive compound. The plants used for the treatment are the most close to homes (53%), intentionally planted and grown, or grown wild (14%). Some plants are obtained from neighboring villages (27%), and some are purchased from the market (6%). The percentages can be shown in the graph in Figure 2 (a), (b), and (c).

One of the plants that is typical of the region is *Caesalpinia bonduc*, which is used to treat lung diseases. The main secondary metabolite components contained in *Caesalpinia bonduc* include alkaloids, flavonoids, saponins, tannins, and triterpenoids (Singh & Raghav, 2012). There are groups, not plant simplicities but come from rocks namely sulfur and brick. Sulfur and concrete stones and bricks are obtained from the market to treat compounds on the skin by applying them. Picture of such materials is shown in Figure 3 (a) and (b). As for the 62 plants used for treatment, they are listed in Table 1.

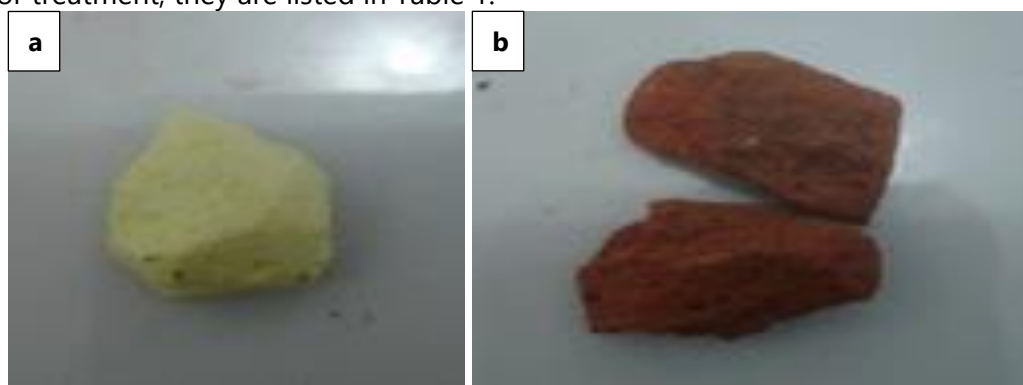


Figure 4. (a). Silverstone (b) Silverstone is a component of the medicinal material used in the village of Paseseh.

Table 1. List of Plants, Latin Names, Families, and Pictures; Parts of Medicinal and Mineral Plants Used by the Municipality of Paseseh, Tanjungbumi District of Bangkalan, Madura, East Java.

No.	Local Name	Scientific Name	Family	Source of Plant	Empirical function	Part of the plant
1.	JerukPurut/ JerukPorot	Citrus hystrix	Rutaceae	garden	Fever	Leaves
2.	Temu kunci/ Konceh	Boesenbergia rotunda	Zingiberaceae	garden	Swelling	Roots
3.	Kencur/ Kencor	Kaemferia galanga L.	Zingiberaceae	garden	Increase appetite	Roots
4.	Lengkuas/ Laos	Alpinia galanga	Zingiberaceae	garden	Itching	Roots
5.	Kunyit Putih/ Konye' Pote	Curcuma Amanda	Zingiberaceae	garden	Urticaria, itching, increase appetite, diarrhea	Roots
6.	Temu Gunung/ Mo gunong	Curcuma aeruginosa Roxb	Zingiberaceae	Another village	Mother's milk louncher	Roots

No.	Local Name	Scientific Name	Family	Source of Plant	Empirical function	Part of the plant
7.	Kunyit/ Konye'	Curcuma longa	Zingiberaceae	garden	Faver, itching, GIT, lung disease	Roots
8.	Tapak liman/ Talpaktana	Elephantopus scaber	Asteraceae Bryophyllum pinnatum	garden	Faver, itching, GIT, lung disease	leaves
9.	Cocor Bebek/ Corbibik	Kalanchoe pinata	Crassulaceae	garden	hemorrhoids	leaves
10.	Lidah Buaya/ Lidah buaya	Aloe vera	Xanthorrhoeaceae	garden	Heart disease	leaves
11.	Daun ungu / Deun kal-kalotek	Graptophyllum pictum	Acanthaceae	garden	Dizziness, nervous system.	leaves
12.	Daun Afrika/-	Vernonia amygdalina Del	Asteraceae	garden	Diabetes, hypertension	leaves
13.	Melati jepang/-	Pseuderatheum reticulatum	Acanthaceae	Garden	Heart disease, Magh	leaves
14.	Daun Adam dan hawa/ Sarapmera	Rhoeo discolor	Commelinaceae	Garden	hepatitis	leaves
15.	Sili-silicon/ Blu'ur	Deeringia amaranthoides (Lam)	Amaranthaceae	garden	fever, rash, ulceration, stomach ache	leaves
16.	Kesimbukan/ Kesembuken	Paederia scandals	Rubiaceae	growing wild	flatulence	leaves
17.	Daun sendok/ deun sendok	Plantago major	Plantaginaceae	growing wild	hepatitis	leaves
18.	Cabe Jawa/ Cabih alas	Piper retrofractum Vahl	Piperaceae	garden	Common cold	leaves
19.	Selasih/ Selase	Ocimum basilicum	Laminaceae	garden	flatulen	leaves
20.	Daun surahan/ saraf nor-nor	Peperomia pellucid	Piperaceae	Growing wild	headache	leaves
21.	Daun Katuk/ Gher-agher	Sauropus androgynus (L.) Merr.	Euphorbiaceae	garden	Stimulate breast milk	leaves
22.	Kumis Kucing/ KomisKoceng	Orthosipon aristatus	Lamiaceae	garden	Liver, and kidney disease	leaves
23.	Kapas hantu/ Kapas tenggih	Gossypium hirsutum L.	Malvaceae	garden	Fever,	leaves
24.	Meniran/ Nir-meniran	Phyllantus niruri L.	Phyllantaceae	Growing	Fever,anti diabet	leaves
25.	Dringau/ Be'es	Acous calamus L.	Liliopsida	Tumbuh liar	diarrhea	leaves
26.	Beluntas/ Beluntas	Plucea indica (L.) Less	Asteraceae	garden	Stimulate breast milk	leaves

No.	Local Name	Scientific Name	Family	Source of Plant	Empirical function	Part of the plant
27.	Daun Pacar/ Daun Pacar	Lacusonia inermis	Lythraceae	garden	Ulceratif, health reproduction	leaves
28.	Daun sirih / Sere	Piper betle L	Piperaceae	garden	kidney, health reproduction	leaves
29.	Asam Muda / Sennam	Tamarindus indica	Fabaceae	garden	Influenza, ulcerative, cough, health reproduction	leaves
30.	- / Saraf Kelabeng	Circinatum L	- (Proses identifikasi)	Growing wild	Feeling unwell	leaves
31.	Daun Secure/ Tesoro	Euphorbia antiquorum L.	Euphorbiaceae	garden	earache	leaves
32.	Biduri/ Deun Getta	Calotropis gigantea	Asclepiadaceae	garden	toothache	leaves
33.	Bidara/ Bukkol	Ziziphus mauritiana	Rhamnaceae	garden	Prickly heat	leaves
34.	Temuireng/ Mo ereng	Curcuma aeruginosca Roxb.	Zingiberaceae	market	Increase appetite	roots
35.	Jahe merah/ Jeimera	Zingiber officinale Rosc.	Zingiberales	Another village	Immune system	roots
36.	Mimba/ Mimbeh	Azadirachta ludica Juss.	Meliaceae	garden	Skin rash	leaves
37.	Sirsak/ Kemores	Annona muricata	Annonaceae	garden	Cough (baby), hypertension	leaves
38.	Pacar air/ car and	Impatiens balsanina L.	Balsaminaceae	Growing wild	Low back pain	leaves
39.	Pepaya/ kates	Carica papaya L.	Caricaceae	garden	Flatrulen (baby), diabetes	Leaves, roots
40.	Keji being / Peccabeling	Strobilanthes crispus Bl.	Acanthaceae	garden	Stomach disease	leaves
41.	Mengkudu / Koddu'	Morinda citrifolia L.	Rubiaceae	garden	Liver, heart, kidneys, heartburn, stomach disease, foot pain, diabetes.	Leaves, fruits
42.	Sarikaya/ Sarkajeh	Annona Squamosa L.	Annonaceae	garden	Children: fever	leaves
43.	Pare/Pariah	Momordica character	Cucurbitaceae	garden	cough.	leaves
44.	Kemangi/ Kemangeh	Ocimum sanctum	Lamiaceae	garden	Baby: cough, fever, ulcerative	leaves
45.	Rosela/ te- tean	Hibiscus sabdarifa L.	Malvaceae	Garden	Magh, food diet	flowers
46.	Pinang/ Penang	Areca catechu	Areceaceae	Market	Reproduction health	fruits

No.	Local Name	Scientific Name	Family	Source of Plant	Empirical function	Part of the plant
47.	Daun miana/ sarap celeng	Plectranthus scutellarioides (L.) R. Br.	Lamiaceae	Growing wild	Feeling unwell	leaves
48.	Jahe/Jeih	Zingiber officinale	Zingiberales	Another village	vomiting	roots
49.	Serai/ serai	Cymbopogon spireng	Poaceae	garden	Influenza, leg pain	leaves
50.	Jambu/jambu	Psidium guajava L.	Myrtaceae	garden	diarrhea	leaves
51.	Temulawak/ molabek	Curcuma xanthorrhiza Roxb.	Zingiberaceae	another	Kidney illness	roots
52.	Lidah mertua/ sarafolar	Sansevieria trifasciata prain	Asparagaceae	Garden	Hepatitis, felling unwell	leaves
53.	Binahong/ binahong	Anredera cordifolia (Ten) Steenis	Basellaceae	garden	Skin disease	leaves
54.	Kayu angin/ kajuh angin	Usnea barbata	Parmeliaceae	Market	Stomach acid	stems
55.	Adas/ adhes	Foeniculum vulgare	Apiaceae	Market	Stomach acid	seeds
56.	Kedawung/ kedabong	Parkia roxburgii G.Don.	Fabaceae	Market	Stomach acid	seeds
57.	Jung rahab/ dhengngateb	Baeckea frutescens L.	Myrtaceae	Market	Feeling unwell	seeds
58.	Anyang- anyang / Kajuhanyang	Elaeocarpus grandiflora J. E. Smith	Elaeocarpaceae	Market	Feeling unwell	stems
59.	Akar kayu angin/ akar kajuh angin	Usnea barbata	Parmeliaceae	Market	Feeling unwell	roots
60.	Kemukus/ Sa'angbulung	Pipe cubeba L.F	Piperaceae	market	Dyspepsia,	seeds
61.	Biji pinang/ Jikelleng	Areca catechu	Arecaceae	market	Feeling unwell	seeds
62.	Kebiul/ Tenglor	Caesalpinia bonduc	Caesalpiniaceae	Growing wild	Lung disease	leaves

The types of plants used in the healing system generally grow around people's homes using native planting techniques. Traditional healing communities (masseurs, herbal medicine makers, psychics, and herbalists) use traditional medicine passed down from their ancestors, but some get inspiration. Some of the equipment used to store and process drugs is shown in Figure 5. (a) and (b). At the time of plant identification, there were 3 plants identified by LIPI Purwodadi Botanical Gardens with Plant Identification Certificate Number No: 574/IPH.06/HM/V/2019. The three plants are: *Deeringia amaranthoides* (Lam) Merr, Nerve Kelabeng (*Circinatum* L), Kebiul/Tenglor (*Caesalpinia* sp.)



Figure 5. (a) A place for storing medicinal ingredients; (b) Pepesans for grinding or grinding medicinal ingredients.

One of the plants that is typical of the area is *Caesalpinia bonduc* (kebiul) which is used to treat lung diseases. The main secondary metabolite components contained in *Caesalpinia bonduc* include alkaloids, flavonoids, saponins, tannins, and triterpenoids (Singh & Raghav, 2012). The acute toxicity test showed that 15 days of use once a day did not show any significant changes to the organs: heart, lungs, and kidneys (Sagar & Vidyasagar, 2010). This plant has the potential to treat chronic cystic fibrosis caused by *Pseudomonas aeruginosa* in the lungs (Arif et al., 2009). The potential as an anti-cancer in the Insilco test shows activity comparable to the patented compound that has been used (Iheagwam et al., 2019).

CONCLUSION

This research provides several conclusions: 62 types of plants are used as medicine for both internal and external use by the people of Paseseh Village, Bangkalan Regency, Madura, East Java, Indonesia. Apart from plants, they also use sulfur stone and bricks for treatment. The plant parts used are Leaves (57%), Roots (16%), Fruit (13%), Stems (12%), and Flowers (12%). Plants were obtained from around the house (53%), other villages (27%), growing wild (14%), and from the market (6%). Meanwhile, the processing itself is mostly boiled (61%), pounded/boiled (27%), pounded 6%, burned (3%), used straight away, and sap taken and crushed (1% each). There are 3 types of plants identified by LIPI Purwodadi Botanical Gardens, namely: *Deeringia amaranthoides* (Lam) Merr, Syaraf Kelabeng (*Circinatum* L), Kebiul/Tenglor (*Caesalpinia* sp.)

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Relevance of Islamic Education with the way of Gen Z learning

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Abstract: This article discusses how to learn with the aim of seeing the ways of learning used by students that are relevant to Islamic education. Using qualitative methods through interviewing informants and obtaining data that the ways of learning used by students in the implementation of lectures are still relevant to Islamic education, the methods used include reading, listening and taking notes, memorizing, discussing, and there are also several other ways, among others, how to experience directly (direct practice), mini research and scientific rihlah and learning in the library. Students also use facilities outside the classroom, namely open spaces such as Seuramoe Teuhah (one of the open halls at IAIN Langsa), the road next to the campus reservoir, parking lot under tarbiyah, PAI laboratory and also the library and what really pleases them is online learning or online (in the network) using android or laptop.

Keywords: Ways of learning; Gen Z and Islamic Education

INTRODUCTION

Gen Z (Generation Z) are individuals born between the mid-1990s to the mid-2012s, they grew up in an era of rapid, accessible and discoverable technology. As stated by (Stillman, 2017) Generation Z is also referred to as the original and first natedigital. According to him, there are five widely recognized generations, Traditionalists, Baby Boomers, Gen X, Millennials or Gen Y, and Gen Z, the latest being Gen Alpha. They have "free" access to information, but often face cultural pressures and moral challenges and even become FOMO (Fear Of Missing Out); afraid of being left behind. Actually, the FOMO attitude should be seen from the positive side so that teenagers are not left behind by the times. However, the fear of being left behind is important to reap strict direction and supervision in various matters, especially in terms of learning so that generation Z remains in the corridor, especially among learners in higher education.

In research (Pujiono, 2021) wrote that the old ways of learning should not be used anymore to be successful in guiding generation Z. One of these old ways is like using the Duduk Dengar Catat Hapalal (DDCH) method. Because Gen Z not only has a virtual world, but also a real world. However, I, the researcher who poured the results in the manuscript of this article, saw from a different side, where students as agents of change and lecturers as assistants in controlling the implementation of lectures, so in the current era of communication and information technology, researchers are trying not to forget the various old ways but to combine them with



various new and developing ways today to be successful in guiding generation Z. One of these old ways such as using the DDCH method is to use the Sit Listen Write Memorize method. One of the old ways such as using the Sit Listen Record Memorize (DDCH) method is still relevant for certain courses but must combine with the latest ways. Because Gen Z must be able to balance themselves in the virtual world, as well as the real world. In order not to get out of the corridor of Islamic education values.

In the context of the system, learning in higher education must be student-centered, because students are individuals who learn, are taught and also act as the main output and outcome of higher education (Saputra, 2015). In addition, the capability of lecturers in managing learning is also an urgent matter so that students are eager to determine and apply their way of learning. Growing and applying ways of learning, it is necessary to look at various related factors. These include 1) the way and competence of lecturers in managing lectures, understanding and being able to adapt to changes in the curriculum and the social learning environment. When students have motivation to learn, it will be reflected in the learning plans they make. There is a clear goal that causes them to want to learn and the birth of a desire to realize the goal. 2) Family circumstances can also trigger someone to learn well or not. 3) Student qualifications as initial input and growth of motivation.

The way students learn can be seen from their ability to understand all aspects of the lecture system and its consequences, including using free time to study independently. Although in reality, there are still many students who do not understand their position so that they do not have the readiness to transfer knowledge, values, insights and new things that can be utilized for daily life. Moreover, in learning, they can use several ways of learning that are contained in this paper.

METHOD

This research is located in the PAI Study Program of IAIN Langsa-Aceh, Indonesia in December 2023, using qualitative methods with phenomenological research types and individualized learning approaches. Collecting data by interviewing and observing 13 active students, 2 lecturers and 1 head of study program. After the data is collected, it is analyzed by reducing, describing the data and drawing conclusions. After the data was analyzed, it was tested for validity by triangulating 2 other lecturers who were not used as informants and also discussing the results of the research with 1 other PAI study program lecturer. The aspects of learning methods studied include reading, listening and taking notes, memorizing and discussing and several other methods.

RESULTS AND DISCUSSION

Tip to Read

The way students read varies, on average students read something related to lecture material, although some read material outside of lecture material with the aim of switching from boredom learning. Reading something related to learning is a very natural thing to show focus and priority on what is being learned. There is a sentence "prioritize what you want to read". Because sometimes it is impossible for each individual to read everything (Wainwright, 2007) so as not to be bored and must always cultivate, have adequate learning attitudes and skills in order to be able to avoid learning obstacles (Mudjianti, 2013).

The way they do it varies and is unique, namely by underlining important things, writing in a notebook, some write on sheets of paper then transfer to a notebook, making a summary or

summary, giving codes in the form of numbers under the marked lines and writing the main points, marking using a highlighter and some write the reference source. Students read books in the library, some read articles, e-books, complete notes from lecturers' explanations, there are also articles downloaded from the internet. They also explore e-cotkala (one of IAIN Langsa's electronic libraries), maktabah syamilah and other reading sources, either magazines or newspapers and so on which can then be related to the lecture material.

In the cognitive context, reading is an activity through stimuli in the form of letters and various other punctuation marks received by the visual receptor (eye). After that, it continues to the brain in order to interpret meaning. (Surya, 2015) also explained, at the psychomotor level, reading is classified as an intellectual skill and leads a person to find meaning about the text so that it can develop experience and knowledge. Therefore, reading is not only reading what is written but also sharpening the intellect by reading what is implied.

Basically, a person who is learning should be diligent and have high motivation in learning the material being studied. Because motivation will appear diligence and sincerity in learning and a strong spirit to imprint in the heart and mind and not have boredom in learning. Regarding Islamic education, (Asari, 2021) conveyed 9 conditions for the success of knowledge claimants stated by Al-Mawardi, one of which is to have high motivation so that they do not experience boredom if they study for a long time and maintain academic ethics about managing time, as stated that in learning it is very important to respect time. In the opinion of the researcher, respecting time is a personal code of ethics for students, especially generation Z students who are very close to technology, one of which is by respecting time and devoting full attention to studying which will feel lost if they waste their time in terms of learning and neglecting other things.

Apart from time, (Saputra, 2015) suggests that students make learning a priority and discipline themselves. Anything can be done and of course it depends on the individual who learns and has their own way of learning. (Mudjianti, 2013) also gave the opinion that the success of a generation Z student is very dependent on the regularity of life and its priorities, including regularity in terms of learning every day. This means that students who discipline themselves by living and studying regularly will be successful in every aspect of their lives.

Generation Z students are also very important to be able to manage time In Islamic education, it is also discussed about managing learning time, as is the opinion (Subri, 2014) on Learning Theory from an Islamic Education Perspective in the division of learning time (takhawwulu Al-Auqot Li Al-Ta'allum); Learning requires proper time management and is in accordance with each individual so that learning activities can run effectively and obtain efficient results. Basically, learning does not require a long time but each learner can do it gradually and continuously. Furthermore, Subri also explained that the Koran has applied this principle, as the Koran was revealed gradually over several years. This situation is intended so that Muslims can memorize and master easily the material being studied. The Prophet has also applied the principle of time division in educating the souls of his companions or when teaching religious material. The Prophet directed and taught the companions in separate times according to the conditions of ease of receiving material so as not to experience boredom and boredom.

In his book, (Bukhori, 1992) wrote, Abdullah ibn Mas'ud said "The Prophet Muhammad PBUH always looked for the right time to advise us for fear of causing boredom in us". HR. Bukhori. Thus, learning continuously without a break in time cannot provide an opportunity for the brain to store messages or material received or read. However, if you study or read or study something continuously, but give a break or and choose the appropriate time, it will provide

an opportunity for the brain to store, precipitate and even partition the message or subject matter received little by little. In the end, the brain will always be able to store effectively (the state of the brain can store precisely the material that has been read) and receptively (Receptive brain ability will continue to easily accept whatever is read and also be able to partition it) so that it can produce it again (recalling).

Subri also continued his explanation that managing time and using the right time (morning, afternoon, evening or midnight or early morning) is also very urgent to manage learning concentration. Because learning concentration is one of the elements that is also important in learning. If you are able to create learning concentration, the material learned will be conveyed into memory and even stored in long-term memory. This concept is also appropriate when applied to learning. Because concentration and focus when learning will provide relevant meaning. Thus, learning concentration must continue to be nurtured, developed and also generated in various ways, including exemplary, asking questions, discussions, or through stories that attract attention.

In addition, students do reading also related to appropriate conditions and pleasant places. The condition of the learning environment can also have an influence on a person's learning. In pleasant conditions, it will definitely give good results (Nugrahaini, 2006). Motivation in learning needs to be continuously cultivated, if we trace back the time of the Apostle how learning was originally formed, there were only a few friends who had the ability to read and write even then because they came from families who were able to social status and economic ability. The illustration makes an illustration of how actually starting from the time of the Prophet PBUH there has actually been a way of learning that is implemented by reading and writing, although some of them call it the term "taking notes". The term reading is often coupled with the words reading, writing and memorizing, because actually the three ways go hand in hand and are interrelated and interdependent (Zuharini, 2004). Thus reading must be routinely done by a student. Although later there are students who have their own ways of doing it (Pulungan, 2019).

Way to listen and take notes

Listening or more often said by listening is an effort to hear carefully. Apart from listening, students also take notes on their lecturers' explanations of the lecture material presented. Listening is also one of the learning activities, especially humans have been given the potential for hearing (Subri, 2014). When listening, there are students who record any sentences conveyed by the lecturer, record only the important ones and some take notes on scribbled paper or in a small notebook, then when they get home they will be transferred to the binder and lecture notebook. Listening is one of the ethics of learning and must be familiarized.

There is a word of wisdom as follows:

Whoever is good at listening will benefit.

Listening, writing or note-taking activities are closely related. In Arabic, writing is often referred to as kitabah, in the Koran in Surah al-'Alaq verse 4 mentioned above, which means "who teaches with a pen". The verse shows that a treasure of knowledge and knowledge can be obtained in the form of writing. In essence, writing is one of the most important learning activities because writing will be able to bind knowledge and because it is through writing that Islamic civilization can be passed down.

Tip to Memorize

Furthermore, how to memorize, the average student really likes the culture of memorizing, especially a quran memorizer. There are several courses including hadith, quran, ushul fiqh,

law, history and philosophy. There are several ways students memorize related to the time and conditions that are suitable for these students, of course according to their self-concept. These methods include understanding the material studied in advance, some write a summary into a notebook, some repeat the material several times, some imagine what they have read and some memorize with a large volume of sound.

Memorization is one way that is also relevant to Islamic education. Memorizing is referred to as a learning activity by trying to remember deeper into the mind. By memorizing, a person will easily produce the knowledge he has if at any time he needs it. An effective way of memorizing is by understanding first and then memorizing it (Subri, 2014). After memorizing knowledge, a person must maintain his memorization as he maintains the code of ethics in learning (Asari, 2021). In the psychology of learning, memorization is very important to store material in brain memory. When recalling information that has been stored and memorized, the brain will be easy to reproduce whatever it has received.

(Taufiq, 2018) states that student learning in Indonesia does not emphasize the ability to read, write, think and observe. Furthermore, (Semiawan, 1999) also states that students are body of material, where students follow passively and memorize lecture material to reproduce it at exam time. There is some truth in the above opinion, but if seen from the learning time and also the self-concept of each individual learner, there is nothing wrong if it is only to get a score. However, if to apply the real concept of learning, individual learners should cultivate routine, continuity and also discipline themselves in learning not only to get grades but more oriented to experience and practice in order to understand the full meaning of learning that must be accounted for in eternal life later as the purpose of Islamic education.

Tip to Discuss

Discussing is an easy way to understand lecture material. Both when studying formally in a lecture class and when studying independently. When studying formally in lecture halls, many lecturers use the discussion method in small groups, only a few courses use discussions with large group divisions. After the discussion takes place, there are lecturers who conclude and explain the material discussed, but there are also those who do not re-explain the results of the discussion. (Bunga, 2016) gives the meaning of discussion in the learning process in higher education is a learning method in which the lecturer presents material to students to hold scientific talks in order to gather opinions, make conclusions and produce various alternative problem solving.

There are also students who feel that discussion makes it easier for them to understand something. He studied with his friends in small groups to conduct discussions outside of lectures and was guided by a friend who was qualified in scientific understanding. According to one of them, although it has been explained by the lecturer, he understands better when he has received further explanation from his friend. Learning in the above way, by (Supratiknya, 2000) explained that it includes organizational learning and also learning with peer groups or peers. Because sometimes peers can understand obstacles or deficiencies or problems in a friend, including learning problems, where peers can also act as facilitators who are ready to help their friends. In Islamic education, to explore knowledge, one must study with a teacher and also study again with friends in order to easily understand.

Actually, discussions are not only carried out in the classroom but also outside the classroom because not all problems can be solved during lectures. (Mu'min, 2014) states that discussions in groups also provide important lessons, among others, have a role in shaping the personality of students. Students who are accustomed to discussing have no problem expressing their opinions in certain forums. By discussing, an attitude of respect for other people's opinions will

be born, not feeling that one's own opinion is the most correct, and our understanding is enlightened and avoids elbowing in studying.

Other tips of learning

In addition to reading, listening and taking notes, memorizing and discussing, there are other ways of learning that are also carried out by students, including direct practice, out door by using several outdoor locations outside the classroom outside the lecture class, visiting historical places (scientific rihlah) or also tourism (field trips) and also mini research (simple research) with observations to locations or institutions determined by the lecturer and also studying in the library. Students are very happy to learn outdoors by sitting on mats under trees, next to reservoirs, in the parking lot under the tarbiyah campus with a roof, in an open hall (seuramoe teuhah). Students also enjoy hands-on practice, such as the tajhizz mayyit practicum (bathing, shrouding, praying for and burying the dead). Materials and equipment for the practicum are sometimes provided by the lecturer or provided by students with student savings per unit. In addition to the tajhizz mayyit practicum, students also practice Hajj. For the practice of Hajj, it is usually done next to the tarbiyah building on vacant land which is still possible to put a miniature kakkabah in the middle of the field and can arrange a place to throw jamarah and so on. Equipment such as the miniature of the Kaaba and others are made by students and stored in the PAI Laboratory under the integrated laboratory of IAIN Langsa.

Furthermore, there is also a way of observation or simple research (mini research), students are assigned to visit several institutions for Islamic Education Counseling courses to Schools and Madrasahs, BNN Langsa City, Prisons and Orphanages. Students explore the latest information according to the themes of guidance and counseling that have been distributed by the lecturer or students determine their own themes regarding certain subjects in the course. This travel activity is usually to observe the subject in simple circumstances. This method is designed for students to be able to implement the knowledge gained in the lecture class for 4 meetings. 8 meetings to tour the mini research location and the next 4 meetings to write a report and report the results in class seminars. In other courses, students are also given the task of cleaning mosques and washing prayer clothes in each mosque in their respective residences. This method actually trains students' habits to learn to serve the community. From these activities will also be born a way of learning direct practice in maintaining the cleanliness of places and equipment of worship. From the above explanation, it is understood that the way of learning must be cultivated by growing cooperation between lecturers and students.

Another way of learning is by visiting historical places or places that are considered representative for scientific deepening, of course, adjusted to the topics studied in a course, for example in the History of Islamic Civilization course. Another term for this scientific rihlah learning method is also called tourism. Tourism is a visit outside the classroom, or going to a place to conduct research or scientific deepening, some also call it a Field-Trip. Lecturers invite and guide students to learn outside the lecture hall and even outside the campus by visiting an object and then studying and analyzing the object.

In the treasures of Islamic education, there is a tradition that is often referred to as "Scientific Rihlah" or scientific travel or travel to study. By (Khalidun, 2013), Scientific Rihlah is said to be a journey taken outside the country or outside the area where he lives in the context of activities to study, find a good place to study, find a teacher or lecturer who is more authoritative or also the journey of a scientist to various places, whether formally doing academic activities or not. It is firmly stated that rihlah is very important in the process of studying, this method is a necessity in order to achieve various benefits and perfection of knowledge. Learning activities like this are indeed very relevant to the way of learning in this era for generation Z.

(Hasan, 2006) also discusses scientific Rihlah this activity can also include a trip that is planned for scientific purposes (learning, teaching, discussing, searching for books, academic tours and so on), or just an ordinary trip taken by someone involved in science. This term can be seen as the purpose of scientific rihlah from two aspects, first; demanding knowledge (Thalaban li al-Ilmi) or second; increasing knowledge (Rasikh fi al-Ilmi) and also with the aim of teaching knowledge in various countries or other countries. In the class of PAI FTIK IAIN Langsa students are still limited to conducting scientific pilgrimage to seek complete information and see firsthand historical places in the nearest place in 3 or 4 districts of cities in Aceh, or even for certain courses whose course content requires scientific development and its application to an institution, then students are assigned to related institutions in the districts of East Aceh, Tamiang, Kodya Langsa and Lhokseumawe.

Furthermore, lectures are also held in the library. As one of the pleasant places, it also makes it easier to obtain the necessary literature, there is a special room available infocus facilities and also full air conditioning, free lesehan space to sit casually on the floor or sit on the kusri that has been provided but still obey the rules to minimize noise. (Berawi, 2012) said that students have the right to utilize all facilities in the library with the rules that apply in the college library and continued by (Yusuf, 1991) that students must also get friendly library services and give the impression of academic happiness. If the library is fun, the books in the library will become the main need, because the library is the heart of the college and an institution, the main function of the library is not only as a means of learning for students but also as a support for the tridharma of higher education.

In terms of education and teaching, the library functions to process, store and present and disseminate information to the community, especially the learning community (students and lecturers) relevant to the course. Students are very enthusiastic when taking place in the library because it is comfortable and also makes it easier for students to do college assignments. Although currently learning resources are easily accessible via android and netbook with various links and active internet network facilities. This is very relevant for generation Z because generation Z is very happy to access things with their android (Sanjaya, 2014) but libraries also need visits to promote knowledge. Historical records of Islamic education write that Islamic attention to education and the glory of books as a medium of knowledge are behind the growth of libraries in Islamic civilization. Where the library in Islam was once glorious as the dissemination and maintenance of books as part of activities to support science and educational activities (Hasan H. A., 2013). Socially, something can change because it is influenced by social life itself (Nasution, 2015).

Likewise, in the social level of learning, the various ways of learning that have been exposed in this paper are a characteristic of realizing learning. This way of learning can change, does not always last and also does not absolutely apply to all, influenced by differences in progress at the level of individuals or social groups that make it last or quickly change which is also influenced by the emergence of new things. but what must be preserved is still relevant to the way of learning in Islamic education.

CONCLUSION

The way students learn includes how to read, how to listen and take notes, how to memorize, how to discuss, and there are also several other ways, among others, how to experience directly (direct practice), mini research and scientific rihlah and learning in the library. Researchers also found that among the students there are those who want to learn not only using classroom facilities but also can use open spaces such as in Seuramoe Teuhah (one of the open halls at

IAIN Langsa), the road next to the campus reservoir, parking lot under tarbiyah, PAI laboratory and also the library and what is very fun they are learning online or online (in the network). Some of the ways that apply to students should still be encouraged in the world of learning today, in addition to still very relevant to the context of learning in Islamic education must also see the various advantages of the way of learning.

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Strategy for improving Islamic capital market literacy through Islamic investment gallery

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Abstract: The presence of the Islamic capital market is considered important, but the level of utilization of Islamic capital market instruments is still very low. Efforts to increase inclusion can be made through increasing literacy in the Islamic capital market among the public. This research aims to identify the strategies of the Investment Gallery in enhancing the literacy of the capital market. This study is a qualitative research study, with the main informant being the person in charge of the Sharia Investment Gallery who is considered to truly understand and comprehend the issues being researched. Additional informants include the director and members of KSPMS as the managers of the Investment Gallery. The research found that in designing activities for the Sharia Investment Gallery, it refers to the concept of Segmenting, Targeting, and Positioning. Market segmentation is conducted to identify potential markets to target so that an increase in the number of investors can be achieved. Meanwhile, in determining the target market, GIS considers the size and potential segments of the market, as not all demographics can be served. This is done to build trust among the community, GIS adopts an approach based on user perception by offering stock products commonly used in daily life to initiate investment.

Keywords: Investment Gallery; Islamic Capital Market; financial literacy

INTRODUCTION

The Capital Market in Indonesia plays a strategic role in the development of the national economy as one of the sources of financing for businesses and an investment avenue for the public (OJK, 2023). It is evident that many industries and companies utilize it as a means to attract investments and as an alternative source of funding, enabling companies to operate on a broader scale, ultimately leading to increased income and prosperity for the broader society (Fianto & Herlambang, 2023).

The progress of the capital market serves as a benchmark for the prosperity of a nation, making the presence of the capital market highly important. To support the government's economic recovery program through the capital market (Nugraha, 2021), efforts to change society's perception of investment are required. Fundamentally, investment is a part of financial transactions in economic activities aimed at managing assets to make them more productive and beneficial to others. As long as there are no Shariah prohibitions in financial transactions, it is permissible (Djazuli, 2007). One form of investment is by placing wealth or funds in the capital market.

To fulfill the public's desire to invest based on Sharia principles, the Sharia Capital Market has emerged, which is part of the Sharia financial industry regulated by the Financial Services Authority (OJK), where all activities are in line with Sharia principles (IDX Islamic, 2019). The



significant potential and opportunities in Islamic finance should be harnessed for the future. One of the advantages of Indonesia's Sharia capital market is that the stock transaction process fully complies with Sharia principles from end to end (Kominfo, 2023).

Efforts to enhance inclusion have been made through the improvement of financial literacy in society, such as providing education to ensure that the public understands appropriate and legal Sharia investments (OJK, 2023). The meaning of financial literacy is education in the field of finance (Howlett et al., 2008), enabling individuals to have knowledge in managing finances (Kiyosaki, 2008). On the other hand, some opinions state that financial literacy is the ability to read and understand everything related to financial matters. There are four things understood in financial literacy, namely: budgeting, saving, borrowing, and investing. This is evidenced by programs organized by the Indonesia Stock Exchange (PT Bursa Efek Indonesia) through the "Ayo Menabung Saham" campaign to encourage the public to start investing in the capital market. Similarly, educational programs are also conducted in collaboration with educational institutions to help students gain a better understanding of the capital market (Merawati, 2015)

IAIN Ambon, as an educational institution, has actively played a role in supporting the development of the Sharia capital market in Maluku. One of the ways is by enhancing students' knowledge as information agents about the capital market, offering courses on Sharia capital markets and related investment topics as part of the curriculum. Moreover, to broaden students' understanding, IAIN Ambon has collaborated with the Indonesia Stock Exchange (BEI) in the Maluku Province, establishing the Sharia Investment Gallery (GIS) to provide facilities for students to access all information about the capital market. Under the umbrella of the Sharia Investment Gallery, the Sharia Capital Market Study Group (KSPMS) has been formed, an on-campus activity that accommodates students interested in studying and promoting the Sharia capital market within the campus community.

Although the existence of the Sharia capital market is considered important, the level of utilization of Sharia capital market instruments can be described as very low, as seen from the results of the National Sharia Capital Market Survey, which indicates that the inclusion rate is only around 5.19%, with a literacy rate of about 15%. This is much lower compared to other financial industries such as banking, which has an inclusion rate of 74% and a literacy rate of 49%. The low levels of financial literacy and inclusion are also evident in Maluku (Rakyat Maluku, 2022). The understanding and use of capital market products and services by the public are limited, and this can be attributed to several factors.

First, there is a lack of adequate understanding of how to transact in the capital market. Second, there is a common perception among the public that capital market products and services come with high risks. Third, the majority of capital market products and services are primarily utilized by the upper-middle-class population (Fatimah, 2018). It cannot be denied that investment interest is influenced by knowledge about investments (Firdaus & Ifrochah, 2022). Someone with financial skills will decide to plan their finances optimally (Kurihara, 2013). There are four things understood in financial literacy, namely: budgeting, saving, borrowing, and investing (Remund, 2010). With knowledge, skills, and confidence, it will influence attitudes and behaviors to improve the quality of decision-making and financial management in order to achieve well-being (OJK, 2023).

This article will discuss a series of intensive strategies undertaken by GIS IAIN Ambon in designing activities for various groups to provide continuous education and socialization so that understanding of literacy in the Islamic capital market in the community can continue to increase.

METHODS

This research is a qualitative study with research procedures that produce descriptive data in the form of written or oral words from individuals and observed behaviors (Meleong, 2014). The purpose of this research is to describe and elaborate on segmenting, targeting, and positioning in the activities of the Sharia Investment Gallery to enhance financial literacy in the Sharia capital market. The research location was determined using a purposive method. The subjects in this research are the Responsible Person of the Sharia Investment Gallery at IAIN Ambon as the primary informant who truly understands and comprehends the researched issues, while the additional informants are the Director and members of KSPMS. Data collection methods include interviews, observation, and document analysis. The data analysis steps used include data reduction, data presentation, and drawing conclusions.

RESULTS AND DISCUSSION

Sharia Investment Gallery

The Sharia Investment Gallery is the result of collaboration between the Indonesia Stock Exchange and investment companies as a means to introduce the capital market to the academic world from an early stage, with the aim of presenting the capital market not only in theory but also in practice. The information and data available in the Investment Gallery in the form of publications and printed materials about the capital market published by the Indonesia Stock Exchange, including regulations and Capital Market Laws, are all intended for academic purposes and not for commercial purposes in stock trading transactions.

Since 2017, IAIN Ambon has established the Sharia Investment Gallery through cooperation with the Indonesia Stock Exchange and Philips Sekuritas. As a Semi-Autonomous Institution (LSO), the Investment Gallery is under the auspices of the Faculty of Islamic Economics and Business at IAIN Ambon.

Over the years, the Investment Gallery has provided services including account opening, capital market education, deepening theoretical knowledge, and practicing simulated real-time trading in the capital market. To ensure that the Investment Gallery operates as expected, all services and activities are supported, monitored, and directly reported by the Indonesia Stock Exchange and securities companies.

Activities of the Sharia Investment Gallery

These activities are carried out regularly to enhance financial literacy and financial inclusion, especially in the Sharia capital market.

Stock Market School

Stock Market School is a regular socialization and education program organized by the Indonesia Stock Exchange. This program is open to the public and can be attended by anyone, including students, lecturers, employees, and the general public, within the campus environment. The mechanism is in accordance with the standards of the Indonesian Capital Market and is guided directly by trainers representing the Indonesia Stock Exchange and securities. The goal of this activity is not only to promote literacy but also to achieve inclusion. This activity is carried out as part of the Sharia Investment Gallery's engagement in conducting socialization and education for the community, especially within the campus environment.

Sharia Capital Market Seminar

Another educational activity is the national seminar or public lecture on the Sharia Capital Market, featuring speakers from the local to national scale who have extensive experience in managing Sharia-based investments. The main objective of this activity is to enhance financial literacy, combat illegal investments by promoting proper and legitimate investment practices, thus reducing the fear of the public to start investing. In its implementation, this activity also takes the form of collaborative seminars with KSPMS from other campuses, attracting up to 500 participants, including students, lecturers, employees, and the general public in Ambon City. These seminar activities serve as an initial step in educating the public to improve Sharia capital market literacy.

Trading Simulation

In addition to understanding investment theory, the Sharia Investment Gallery (GIS) also complements its activities with trading simulations, which are training sessions on simulating the steps involved in buying and selling stocks while considering the risks and returns. Participants gain an understanding of when the right time is to make stock purchases and sales. Participants not only grasp the theory but also engage in practical exercises. This activity is expected to equip participants with the skills to analyze stocks and make smarter investment decisions in the capital market.

Competitions

Competitions are also utilized as a means to educate students and pupils about the Sharia capital market. Various competitions are organized, including stock labs, trading competitions, essay competitions, and more. It's not uncommon for the Sharia Investment Gallery (GIS) to send delegations to participate in competitions at other campuses, both at the regional and national levels, such as stock trading competitions and Capital Market Ambassadors. Over the past five years, GIS at IAIN Ambon has made significant contributions to supporting investment education activities in the capital market, resulting in GIS IAIN Ambon receiving the GI Award in 2020 and 2022. In 2023, GIS IAIN Ambon was selected as the pilot project for the Investment Gallery in Maluku.

Discussion Groups

Discussion activities take place in two forms. Firstly, among the Sharia Investment Gallery (GIS) operators, from mentors to students who are members of KSPMS (Capital Market Study Club). This activity aims to provide mutual support among GIS operators and serves as a platform for exchanging ideas to discuss program activities and developments in investment products and general investment knowledge. Secondly, in the form of "Obrolan Asyik Seputar Investasi Saham" (Casual Conversations about Stock Investments), conducted by KSPMS with students who are new to the capital market. For the general audience, the Investment Gallery also offers a Talkshow on Introduction to Sharia Stocks.

Reading Corner

Opening a free reading corner for all students, providing a variety of books related to the Islamic capital market. With the establishment of a reading corner created by students who are members of KSPMS, it is hoped to enhance the literacy of all students. This activity also often includes book discussions.

Strategy of Galeri Investasi Syariah Activities

An approach that can be used to develop messages and marketing strategies that align with target segmentation is STP, which stands for Segmenting, Targeting, and Positioning. Segmenting or market segmentation is the process of identifying a heterogeneous market by grouping it into potential segments that share similar needs or homogeneity (Kasali, 2001). Market segmentation can also be understood as an effort to divide the market into distinguishable groups based on their needs, characteristics, or behaviors that may require specific products and marketing strategies to reach them resources (Kotler & Armstrong, 2001). Market segmentation makes it easier to carry out activities that are suitable for reaching the target audience. There are four main variables used for market segmentation: geographic segmentation, which divides the market into units based on geography such as countries, regions, cities, or housing complexes; demographic segmentation, which divides the market into groups based on variables like age, gender, income, occupation, religion, race, and nationality; psychographic segmentation, which divides the market based on social characteristics, lifestyle, or personality; and behavioral segmentation, which divides the market based on knowledge, attitudes, usage, or market reactions to a product. Market segmentation is done to identify potential markets to target so that an increase in the number of investors can be achieved. The segmenting strategy employed by GIS IAIN Ambon is based on geographical and demographic segmentation. Geographical segmentation, in conducting activities, is not only focused on the campus environment but also extends to potential areas to target the desired market and meet the needs of potential investors. GIS, along with KSPMS, utilizes social media platforms such as Instagram and Facebook to educate and promote awareness of Shariah capital market instruments to make them easily known to the public. Meanwhile, the demographic segmentation includes: students, housewives, faculty members, employees, and alumni. The targeted age group is around 17-60 years old, reflecting their needs, desire to understand, and use capital market instruments.

After segmenting and identifying the targeted segments, the next step is Targeting. Targeting involves selecting target markets to determine which market segments are most suitable to pursue. This typically involves choosing one or more segments to focus on. When evaluating different market segments, it is important to first examine the size and growth of the segments, the attractiveness of the segment structure (including the presence of competitors), and the alignment of the target and available resources (Kotler & Armstrong, 2001). Targeting In determining the target market, GIS IAIN Ambon considers the size and potential segments of the market, as not all demographics can be served. The target market of GIS IAIN Ambon essentially aligns with its goals, which are literacy and inclusion in the Islamic capital market. For educational literacy and awareness among students, the target is for them to become investors after gaining income and understanding suitable financial instruments for investment. If the target market includes faculty members, housewives, and employees, they are considered to have a high potential for inclusion as they already have income. Meanwhile, if the target is students, it focuses more on literacy goals, although it's not uncommon for students to also progress to inclusion in investment activities.

Next is Positioning, which involves determining the right position by building an image and trust in the eyes of consumers. It's about what makes consumers remember a product due to its advantages or how a product is perceived differently from competitors. In positioning, manufacturers will design the company's offerings to occupy a distinct value and place in the minds of the target consumers (Kotler & Armstrong, 2001). This activity is carried out as a strategy to create differences, advantages, and benefits that make consumers always remember

the product (Fanggidae, 2006). Positioning To build trust among the community and students, GIS IAIN Ambon adopts an approach based on user perception, in this case, the products offered for investment are stocks and products commonly used in daily life. The hope of GIS IAIN Ambon is that by taking this approach, it will make the community or students more confident and willing to engage in inclusionary activities.

CONCLUSION

In designing the activity program, the enhancement of Islamic capital market literacy at the Islamic Investment Gallery of IAIN Ambon refers to the concept of Segmenting, Targeting, and Positioning. Segmenting is based on geographical segmentation and demographic segmentation. Geographical segmentation targets the campus environment and potential residents outside the campus, while demographic segmentation includes students, alumni, faculty members, employees, and housewives. The primary target market is students, alumni, faculty members, employees, and housewives, and Positioning. This strategy aims to increase public literacy to become stock investors in the Islamic capital market.

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The influence of managerial and institutional ownership on corporate social responsibility disclosure: Evidence from Indonesian Listed Companies (2020-2022)

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Abstract: This research aims to investigate the empirical evidence concerning the influence of Managerial Ownership and Institutional Ownership on Corporate Social Responsibility (CSR) Disclosure. Purposive Sampling method was utilized to select a sample of 21 companies listed on the Indonesia Stock Exchange from 2020 to 2022. The findings indicate that Managerial Ownership does not significantly affect CSR Disclosure. This indicates that, although managers own company shares, they may be more interested in short-term financial gains than corporate social responsibility. Whereas the presence of Institutional Ownership has a negative impact on CSR disclosure. On the other hand, financial institutions tend to focus more on short-term financial gains, which may sacrifice more sustainable CSR practices. This study contributes to the understanding of the relationship between ownership structure and CSR practices in the context of Indonesian listed companies.

Keywords: Managerial Ownership; Institutional Ownership; Corporate Social Responsibility

INTRODUCTION

In the era of globalization and economic complexity, demands for corporate social responsibility (CSR) are increasing (Rinaldi, Ramadhani, Sudirman, Ramadhani, et al., 2023; Rinaldi & Ramadhani, 2023). Companies are not only expected to achieve financial profitability but are also seen as responsible for the social, environmental, and economic impacts of their operations (Hutauruk et al., 2021; M. H. Z. K. Ramadhani et al., 2023). Public awareness of issues such as climate change, social inequality, human rights, and environmental sustainability is growing (Irwansyah et al., 2023; Rinaldi et al., 2020). Society is more sensitive to business practices that have both positive and negative impacts and tend to support companies committed to CSR.

The concept of CSR has evolved from traditional views of philanthropy and charity to the integration of social responsibility into core business strategies. This includes aspects such as implementing sustainable business practices, engaging in community initiatives, and ensuring transparency and accountability in CSR reporting (Oktafiani et al., 2023; M. A. Ramadhani et al., 2023; Sudirman et al., 2023). Despite the many benefits associated with CSR, companies face challenges in its implementation. These challenges include difficulty in quantitatively measuring CSR impacts, managing high expectations from various stakeholders, and dealing with the complexities of global supply chains (Rinaldi, Ramadhani, Sudirman, & Ramadhani, 2023a).

One phenomenon in managerial and institutional ownership within CSR practices is exemplified by Starbucks. Managerial ownership at Starbucks significantly influences the company's focus on CSR. Howard Schultz, former CEO of Starbucks, who holds a significant stake in the company, actively promotes responsible CSR practices (Ramadhani et al., 2022; Rinaldi, Ramadhani, Sudirman, & Ramadhani, 2023b; Sandag et al., 2022). Schultz leads initiatives such



as employee training centers, reducing water usage in operations, and programs to combat poverty in communities where they operate.

On the other hand, institutional ownership at Starbucks also plays a role in the company's CSR influence. Several institutional shareholders, including large pension funds and investment funds, have pushed the company to prioritize financial profitability in recent years (M. A. Ramadhani & Rinaldi, 2023b, 2023a; Rinaldi, Ramadhani, Ramadhani, et al., 2023). They advocate for measures such as improving operational efficiency and emphasizing product innovation to increase profit margins. The Starbucks case reflects the complex dynamics between managerial and institutional ownership with CSR. While Schultz and managerial ownership advocate for prioritizing social and environmental responsibilities, pressure from institutional shareholders to achieve financial gains can create conflicts of interest. This underscores the importance of finding the right balance between the long-term interests of the company in CSR and the short-term financial interests of shareholders.

The relationship between managerial ownership and CSR is a complex subject influenced by various external and internal factors. Generally, managerial ownership refers to the proportion of company shares owned by managers or company executives themselves. In the context of CSR, managerial ownership can influence the company's policies regarding social responsibility. One fundamental assumption is that managers who own shares in the company tend to have long-term interests in the company's performance, including performance in terms of social responsibility. This may lead to a tendency to adopt sustainable and long-term CSR practices. For example, they may be more inclined to invest company resources in CSR projects that address social and environmental impacts, even if they do not provide immediate financial returns.

Furthermore, the complex ownership structure where managers hold company shares but significant institutional ownership or wide public ownership also exists, may obscure the managerial influence on CSR. In such situations, CSR-related decisions may be influenced by various interests and pressures from both external and internal shareholders. Previous studies have shown both positive (Cho & Ryu, 2022; Erawati & Sari, 2021; Putri & Badera, 2022; Safitry et al., 2022; Zulkifli et al., 2022) and negative impacts. However, other research findings also exist (Agustina & Lestari, 2022; Dewi & Yanto, 2021; Listianawati & Hersugondo, 2023; Veny, 2021). Some studies indicate no significant impact, as companies in implementing CSR are not intervened by managerial ownership (Dwipayadnya et al., 2015; Rustiarini, 2011; Veny, 2021).

Institutional ownership, encompassing stock ownership by insurance companies, pension funds, investment funds, and other financial institutions, has a significant impact on a company's CSR policies. In many cases, these institutions have long-term interests in the company's performance, both financially and reputationally, thereby influencing the company's approach to CSR (Zebua, 2019). Generally, these institutions often hold large stock portfolios in various companies, giving them substantial influence over the company's strategic decisions. In the context of CSR, these institutions may evaluate the company's performance from a social and environmental responsibility perspective (Shidiq et al., 2019; Zebua, 2019). Therefore, they may be more inclined to support companies implementing strong CSR practices because this can enhance the company's image, reduce reputation risks, and strengthen long-term sustainability.

However, there is also potential for conflicts of interest in the relationship between institutional ownership and CSR. For example, while financial institutions may be interested in strong CSR practices, they also have a responsibility to provide maximum return on investment to their shareholders. In some cases, these short-term financial interests may conflict with long-term CSR investments. Additionally, in situations where these institutions have widely dispersed

stock portfolios, their influence on the company's CSR policy may be more limited. Institutional ownership has both positive (Fitriana, 2019; Latifah & Widiatmoko, 2022; Safitry et al., 2022; Zulkifli et al., 2022) and negative influences (Anita, 2018; Listianawati & Hersugondo, 2023). Some studies show no significant impact of institutional ownership on CSR. This is because companies in implementing CSR programs are not heavily dependent on decisions made by institutional ownership shareholders (Rustiarini, 2011; Veny, 2021; Zahro et al., 2023).

METHODS

Operational Definition of Variables

Corporate Social Responsibility (CSR)

In this research, the independent variable considered is Corporate Social Responsibility (CSR), which is assessed based on the extent of CSR disclosure made by the company. CSR disclosure in this study refers to the GRI Standard indicators obtained from the website <http://www.globalreporting.org>. The GRI Standard is a guideline used to prepare sustainability reports, covering a total of 136 disclosures that include various aspects such as Environment (EN), Human Rights (HR), Labor Practices (LP), Product Responsibility (PR), and Society (SO) (Rinaldi et al., 2020).

The method used to assess the level of CSR disclosure in this study is by assigning a score of 1 if the company meets the criteria listed in the GRI Standard checklist, and a score of 0 if no disclosure is made. The checklist is then totaled and calculated using the following formula:

$$CSRI_i = \frac{\sum xy_i}{n_1}$$

Managerial Ownership

Managerial ownership refers to the level of stock ownership by management entities actively involved in decision-making processes. The measurement of managerial ownership is assessed based on the proportion of shares held by management at the end of the year, presented in percentage form (Cho & Ryu, 2022; Erawati & Sari, 2021). The mathematical formula used to measure this variable is formulated as follows:

$$\text{Managerial Ownership} = \frac{\text{Total Number of Outstanding Shares}}{\text{Number of Shares Held by Management}} \times 100\%$$

Institutional Ownership

Institutional ownership entails the ownership of a company's stock by institutions or entities such as insurance companies, banks, investment firms, and other institutional holders (Listianawati & Hersugondo, 2023; Zahro et al., 2023). The measurement of this variable is formulated in a mathematical equation as follows:

$$\text{Institutional Ownership} = \frac{\text{Total Number of Outstanding Shares}}{\text{Number of Shares Held by Institutions}} \times 100\%$$

Population and Sample

The population refers to the entire research object. The population in this study comprises all manufacturing companies in the basic and chemical industry sub-sectors listed on the Indonesia Stock Exchange (IDX) from 2020 to 2022. The sample selection method in this research utilizes purposive sampling, where the sample is chosen based on specific criteria. The

criteria include: (1) Manufacturing companies listed on the Indonesia Stock Exchange continuously throughout the period from 2020 to 2022; and (2) Companies with complete data related to the variables used in the study, namely managerial ownership, and institutional ownership.

Research Design

The research design employed in this study is associative research aimed to determine whether there is a relationship between two or more variables (M. A. Ramadhani & Rinaldi, 2023b; Rinaldi & Ramadhani, 2023). This study utilizes the annual report as the unit of analysis, which includes financial reports, CSR reports, and Organizational Structures of Manufacturing Companies in the Basic and Chemical Industry Sector listed on the IDX during the period of 2020 – 2022. The research method utilizes secondary data obtained from literature reviews and other sources as references.

RESULTS AND DISCUSSION

Results

Descriptive Statistical Test

Tabel 1. Descriptive Statistical

Variable	N	Min	Max	Mean	Std. Dev.
Managerial Ownership (X1)	63	0,0001	0,2521	0,062011	0,0598385
Institutional Ownership (X2)	63	0,1000	0,9219	0,663413	0,1678672
CSR (Y)	63	0,2527	0,4175	0,314091	0,0436683

The Managerial Ownership variable (X1) has a range of values from 0.0001 to 0.2521. The mean value is 0.062011 with a standard deviation of 0.0598385. The Institutional Ownership variable (X2) has a minimum value of 0.1000 and a maximum value of 0.9219. The mean value is 0.663413 with a standard deviation of 0.1678672. Meanwhile, the CSR variable (Y) has a minimum value of 0.2527 and a maximum value of 0.4175. The mean value is 0.314091 with a standard deviation of 0.0436683.

Normality Test

Tabel 2. Normality Test

N	Sig	Ket.
63	0.147	Berdistribusi Normal

The results of the Kolmogorov-Smirnov test in the table show a significant value of 0.147. Therefore, it can be concluded that the residual data follows a normal distribution. In other words, the regression model used satisfies the assumption of normality, as the significance value is greater than 0.05.

Multicollinearity Test

Tabel 3. Multicollinearity Test

Variabel	Tolerance	VIF
Managerial Ownership (X1)	0,932	1,072
Institutional Ownership (X2)	0.920	1,087

The results of the multicollinearity test in the table indicate that none of the independent variables have a tolerance above 0.10 and VIF below 10. Thus, it is concluded that there is no multicollinearity among the independent variables in this regression model.

Heteroskedasticity Test

Tabel. 4 Heteroskedasticity Test

Variabel	Sig.
Managerial Ownership (X1)	0,235
Institutional Ownership (X2)	0,301

From the Table 4, it can be observed that the Managerial Ownership variable has a significance value of 0.235, while the Institutional Ownership has a significance value of 0.301. This indicates that both variables yield results exceeding the 5% significance level or 0.05. Therefore, it can be concluded that there are no heteroskedasticity issues occurring in the regression model.

R² Test**Tabel 5.** Coefficient of Determination Test

R	R Square	Adjusted R Square
0,226	0,139	0,100

Based on the results of the analysis in the Table 5 can be seen that the coefficient of determination (R Square) is 0.226. The coefficient of determination or Adjusted R Square of the influence of Managerial Ownership and Institutional Ownership is able to predict its influence on CSR Disclosure by 0.100, meaning that CSR disclosure is influenced by Managerial Ownership and Institutional Ownership by 10%. While the rest is influenced by other variables that are not used in this research model.

F Test**Tabel 6.** Uji F

Ftabel	F Hitung	Sig.
3,14	3,147	0,041

From the results of the F test in the Table 6, a significance level of 0.041 is obtained. This value is smaller than the alpha level of 0.05. Based on these results, it can be concluded that the regression model is suitable for use, or in other words, the structure of Managerial Ownership and Institutional Ownership is capable of influencing CSR Disclosure.

T Test**Tabel 7.** Uji t

Variabel	B	Thitung	Sig
Konstanta	0,197	2,122	0,078
Managerial Ownership (X1)	0,015	0,144	0,886
Institutional Ownership (X2)	-0,050	-1,338	0,032

Based on the results of the t-test for the Managerial Ownership variable (X1), the calculated t-value is 0.144 and the significance value is 0.886, with a coefficient value of B being 0.015. The results indicate that the significance value is greater than the level of significance ($\alpha = 0.05$) and state that the Managerial Ownership variable does not have a significant effect on CSR Disclosure.

Based on the results of the t-test for the Institutional Ownership variable (X2), the calculated t-value is -1.338 and the significance value is 0.032, with a coefficient value of B being -0.050. The results indicate that the significance value is greater than the level of significance ($\alpha = 0.05$) and state that the Institutional Ownership variable has a negative effect on CSR Disclosure. This is indicated by the negative value of the coefficient B.

Discussion

The Influence of Managerial Ownership on Corporate Social Responsibility Disclosure

Based on the research results, it is concluded that managerial ownership does not significantly affect CSR disclosure, thus hypothesis H1 in this study is rejected. Managerial ownership refers to the level of stock ownership by management involved in corporate decision-making. The underlying assumption of this relationship is that managers who own company shares tend to have interests aligned with the company's long-term interests, including CSR. However, this research shows that the relationship between managerial ownership and CSR does not always exhibit significant influence. One possible interpretation is that managerial ownership does not always directly lead to stronger CSR policies.

Although managers own company shares, their interests may be more focused on short-term financial gains than on corporate social responsibility. In this situation, the personal interests of managers may be more dominant than the overall interests of the company. Additionally, the level of managerial involvement in CSR decision-making is also a crucial factor. If managers are not directly involved in CSR decisions, their stock ownership may not have a significant impact on the company's CSR practices. Sometimes, when managerial interests are not aligned with those of other shareholders, managers may prioritize their interests, resulting in reduced CSR efforts. This research aligns with previous studies that found no significant influence between managerial ownership and CSR disclosure (Anita, 2018; Dwipayadnya et al., 2015; Nugraheni et al., 2022; Rustiarini, 2011).

The Influence of Institutional Ownership on Corporate Social Responsibility Disclosure

Based on the research results, it is stated that institutional ownership has a negative influence on CSR disclosure, thus hypothesis H2 in this study is rejected. Financial institutions such as pension funds and insurance companies may have a greater focus on achieving quarterly financial gains than on the long-term interests of the company or society as a whole. This may lead them to encourage companies in which they hold shares to prioritize short-term financial gains, even if it means sacrificing more sustainable CSR practices.

Institutional ownership is often associated with high expectations from shareholders to achieve optimal investment returns, which may lead companies to allocate fewer resources to CSR programs that require long-term investment without immediately visible financial returns. Some financial institutions may have the primary goal of maximizing profits without considering the social and environmental impact of their investments. As a result, they may not exert enough pressure on the companies they invest in to improve CSR practices or pay attention to social and environmental responsibilities. Some financial institutions may not have clear policies or guidelines regarding corporate social responsibility or business ethics. In this situation, they may be inactive in influencing their portfolio companies to adopt responsible CSR practices. This research aligns with previous studies that found a negative influence between institutional ownership and CSR disclosure (Anita, 2018; Listianawati & Hersugondo, 2023).

CONCLUSION

This research concludes that managerial ownership does not significantly affect CSR disclosure, while institutional ownership has a negative influence on CSR disclosure. This indicates that, although managers own company shares, they may be more interested in short-term financial gains than corporate social responsibility. On the other hand, financial institutions

tend to focus more on short-term financial gains, which may sacrifice more sustainable CSR practices.

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