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Cultivation of Family Medicinal Plants using the Verticulture Method as Efforts to Use Narrow Yard Land in Rawamangun, East Jakarta

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ABSTRACT

The area of RW 01 Rawamangun, Pulogadung District, East Jakarta does not have an allocation of open land, so there is a minimum of green yards. The technology introduced in this community service activity is the cultivation of family medicinal plants in yards using the verticulture method. The purpose of this community service activity is to convey information about the cultivation of family medicinal plants through lectures, discussions, and direct practice of cultivating family medicinal plants in yards using the verticulture method. Evaluation of participants' knowledge improvement was carried out by pre-and post-test after counseling and cultivation practices. Skills participants are carried out when evaluating the practice of cultivating medicinal plants in their yards. The results of the activity showed an increase in basic knowledge regarding the types, benefits, and techniques of cultivating family medicinal plants from technology. Family medicinal plant service activity is classified as successful and beneficial, due to there is an increase in knowledge with an average score of more than 60, namely an average post-test score of 85 compared to when there was no technology transfer from an average value of pre-test 65.7 and demonstration direct practice of family medicinal plant cultivation with the verticulture method. All participants demonstrated adequate skills when conducting hands-on demonstrations ranging from making planting media, planting, to maintaining medicinal plants in their yards. The skills evaluation showed that some residents were able to plant and maintain family medicinal plants on a narrow plot of land using the proper verticulture method. The results of the cultivation of these medicinal plants, apart from being one of the real actions of plant greening, can also be in the form of powder products whichcan then be consumed as a body health measure or sold.

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INTRODUCTION

Currently, urban communities are less aware of the use of medicinal plants to treat degenerative diseases suffered by both themselves and their families due to lack of education, narrow living space, so there is a lack of open land for planting medicinal plants. The use of medicinal plants itself in urban areas is already under the administration of a government program that utilizes yards as a medium for medicinal plant cultivation, but its application has not been evenly distributed throughout urban communities so that with the presence of campuses in Indonesia it is expected to be able to assist the implementation of government programs related to the use of medicinal plants even though is constrained by the lack of open land for planting medicinal plants so that it is hoped that urban communities can benefit more from medicinal plants.

The knowledge of local communities in utilizing plant resources will greatly help to preserve biodiversity and efforts to domesticate medicinal plants (Kandari et al., 2012). Public knowledge in utilizing plant resources can be seen through living pharmacies. A living pharmacy is a term used for traditional medicinal use of plants planted with medicinal properties (Syarif et al., 2011). The yard is open land located around a residential area. The yard of the house is the perfect place to implement a live pharmacy for medicinal plants (Nurmayulis and Hermita, 2015).

The area of RW 01 Rawamangun Village, Pulogadung District, East Jakarta lacks an allocation of open land so that there is a minimum of green yards. In addition, most of the residents have minimal education, on average high school graduates, so that knowledge about the cultivation and use of medicinal plants is very lacking. As a result, entrepreneurial activities ignore the importance of using medicinal plants. Their lack of concern about personal health resulted in some residents suffering from degenerative diseases. One of the efforts that can be made to assist the implementation of government programs related to the use of medicinal plants is by holding Tri Dharma Perguruan Tinggi activities in the form of community service activities. The community around the campus area is deemed necessary to be partners in activities. This is important because of the proximity of the location and the needs of the community around the campus for the implementation of science in the community. Community service activities regarding the cultivation and utilization of family medicinal plants through verticulture techniques are expected to be able to provide many benefits to the community of RW 01 Rawamangun Village, Pulogadung District, East Jakarta, including the community is expected to be able to independently cultivate family medicinal plants so that the harvest can be used for herbal medicine. The herbal medicine concocted by the community can be used to prevent and even treat degenerative diseases. In this case, several variables will be part of the evaluation and monitoring of this community service activities program, such as the growing conditions for family medicinal plants that have been planted to the use of family medicinal plants as herbal medicine.

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LITERATURE REVIEW

Changing people's awareness, mindset and lifestyle require socialization. The government through the ministry of health continuously socializes family medicinal plants and motivates people to plant medicinal plants. In collaboration with the Health and Family Welfare Advisors Office in each district in Indonesia, the socialization of family medicinal plants continues to be carried out through training to the best implementation of Village or City competitions for the utilization of family medicinal plants results up to the national level.

The success of socialization can increase public interest in using traditional medicine. This is because people feel that traditional medicine comes from natural ingredients which are cheaper and the raw materials are easier to obtain by Nursiyah (2013). In addition, the local wisdom of the people in certain communities allows the use of traditional medicines (Situmorang and Harianja, 2014). According to Katno (2009) people have switched to traditional medicine because the price is cheaper, the ingredients are easier to obtain when planted alone, and generally, one plant has more than one pharmacological effect so that it is useful for the treatment of degenerative and metabolic diseases.

People know herbal medicine as a form of medicinal plant use. The herbal medicine includes all-natural ingredients that are processed or formulated, according to the traditional way, the benefits of the herbal medicine itself are to strengthen the human body, prevent disease or heal people who suffer from the disease. Usually, herbal medicine is used in alternative complementary medicine, namely non-conventional medicine which aims to prevent, promote, and curative efforts to improve the health status of urban and rural communities (Ahmad, 2012).

Several types of family medicinal plants are used by the Indonesian people, including turmeric, ginger, kencur, ginger, galangal, salam, pace, pyanghong, cat whiskers, Soka, star fruit, betel, meniran, amethyst, kemlandingan, kangkung moss, white turmeric, wood sweet, Gotu kola, reeds, and treads of the white virgin (Syarif et al., 2011). People from generation to generation have taken advantage of the advantages of medicinal plants to treat degenerative diseases.

For residents who do not have enough open land in their yards, the cultivation of this medicinal plant can still be carried out using verticulture techniques. Verticulture technique is a technique of planting by utilizing soil as a planting medium, the same as when we plant using pots or polybags as in general, it's just that in this type of technique the planting media and plants are arranged vertically. Verticulture technique is a greening system that is very suitable and recommended for urban areas with limited or narrow yards. If an area of 1 square meter is usually only able to plant 5 plants, vertical techniques can produce 24-27 plants depending on the type of plant and needs.

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IMPLEMENTATION METHOD

Place and Time. The community service activities program is aimed at the people of Rawamangun Village, East Jakarta which is carried out within a span of 3 months from August to October 2020. The PKM program is located in RW 01 Rawamangun Village, East Jakarta, which is ± 1 km from Jakarta State University.

Target Audience. The community service activities program is aimed at the community of RW 01 Rawamangun Village, East Jakarta, with a total of 7 registered participants attending from the beginning to the end of the activity who are over 17 years old. We deliberately limit the number of participants to no more than 10 people (including service representatives) because the implementation of the community service activities program coincides with the COVID-19 pandemic in which all Indonesians are being urged by the government to stay at home.

Service Method. The technology transfer method carried out in this community service activity is lectures, discussions, direct demonstration of family medicinal plant cultivation practices, as well as technical guidance and assistance. All activities have of course been designed so that they can continue to be carried out by applicable health protocols. The lecture was held during the socialization event which took place at RW 01 Rawamangun Village, East Jakarta. Direct outreach to the public includes four materials, namely: types and characteristics of family medicinal plants, cultivation of family medicinal plants using verticulture techniques, utilization of family medicinal plants as herbal medicine that has the potential to prevent and treat degenerative diseases, and business opportunities for herbal medicine production. The discussion was held after the lecture was finished. Hands-on demonstrations include the preparation of verticulture planting media, planting family medicinal plants seeds, and manufacturing herbal products. Each participant brought two types of family medicinal plants to be maintained in their respective yards using the verticulture method. Guidance and technical assistance are carried out for two months after planting.

Success Indicators. community service activities are said to be quite successful if there is an increase in the knowledge and skills of participants about four socialization materials, namely: types and characteristics of family medicinal plants, cultivation of family medicinal plants using verticulture techniques, the use of family medicinal plants as herbs that have the potential to prevent and treat degenerative diseases, and a business opportunity for the production of herbal medicine with an average score of more than 60. The skills evaluation was carried out during a hands-on demonstration. Participants were asked to pay attention to and imitate the process of making planting media, planting, and maintaining several types of family medicinal plants, namely ginger, turmeric, ginger, galangal, kencur, and lemongrass. Participants who can make planting media with the verticulture method, planting family medicinal plant seeds, and properly maintaining medicinal plants for two months are considered capable of performing cultivation skills correctly.

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Evaluation Method. Evaluation of the level of participants' understanding of the knowledge and activities carried out is measured through the pre-test and post-test methods. The pre-test was carried out before and the post-test was carried out after the socialization, discussion, and hands-on demonstration activities. Participants were asked to work on the questionnaire independently. This service activity is said to be successful and useful if:

1. Increasing the knowledge and skills of participants regarding the introduction of family medicinal plant types and their properties with a score of more than 60.
2. Increase participants' knowledge about family medicinal plant cultivation technology with a score of more than 60.
3. Increasing the knowledge and skills of participants regarding family medicinal plants processing technology into consumable products with a value of more than 60.
4. Increase participants' knowledge about the importance of family medicinal plants in maintaining family health with a score of more than 60.

RESULTS AND DISCUSSION

Preparation. The preparation stage is carried out by preparing the planting media that will be used in planting family medicinal plant seeds. There are several types of family medicinal plant seeds used in the socialization, namely, ginger, turmeric, ginger, galangal, kencur, and lemongrass. The preparation of questionnaires that will be used during the pre-and post-test is also carried out in the preparation stage. In addition, the preparation of extension materials is also carried out at this stage.

Socialization. Technology transfer carried out in this activity began with counseling or socialization. The socialization is intended to provide knowledge covering four materials, namely: types and characteristics of family medicinal plant, cultivation of family medicinal plants using verticulture techniques, utilization of family medicinal plant as a potential herbal medicine to prevent and treat degenerative diseases, and business opportunities for herbal medicine production. The socialization activity was delivered through oral exposure with the lecture method with audiovisual displays using power points and video literacy. This approach is taken to facilitate the transfer of knowledge regarding types and benefits, family medicinal plant cultivation technology, and business opportunities for family medicinal plant cultivation products. During the socialization, discussion opportunities were developed to meet the information needs of the participants about the verticulture methods to be applied and the opportunities and obstacles that might arise when carrying out family medicinal plant cultivation activities. Participants were quite enthusiastic in asking several questions related to the use and maintenance of family medicinal plants. Some participants have a hobby of farming so that they have or are currently maintaining family medicinal plants, but some participants have not or have never planted family medicinal plants before, so there is an interesting interaction between the participants. The service ac-

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tivities carried out are seen in figure 1 below.

Live Practice Demonstration. The next technology transfer activity was a demonstration of the family medicinal plant cultivation practice. Participants as the target audience are directly involved in the family medicinal plants cultivation stage. Family medicinal plants planted include ginger, turmeric, ginger, galangal, kencur, and lemongrass. Family medicinal plants such as ginger, turmeric, ginger, galangal, and lemongrass are examples of family medicinal plants that are easy to grow in the yard of the house and can be useful as a repellent for various minor daily ailments such as coughs, colds, and heartburn. Family medicinal plants themselves can be consumed by processing them first. Some medicinal plants can be used daily and processed in simple ways such as boiling and mixing with water or other ingredients. With the many benefits offered by family medicinal plants, it is hoped that the community can reap the benefits so that they can lead to a healthy Indonesian society. The hands-on demonstration activities that can be seen in figure 2 include the preparation of verticulture planting media, planting family medicinal plant seeds and manufacturing herbal products.

Figure 1.
Documentation of activities carried out at RW 01,
Rawamangun Village, Pulogadung District, East Jakarta

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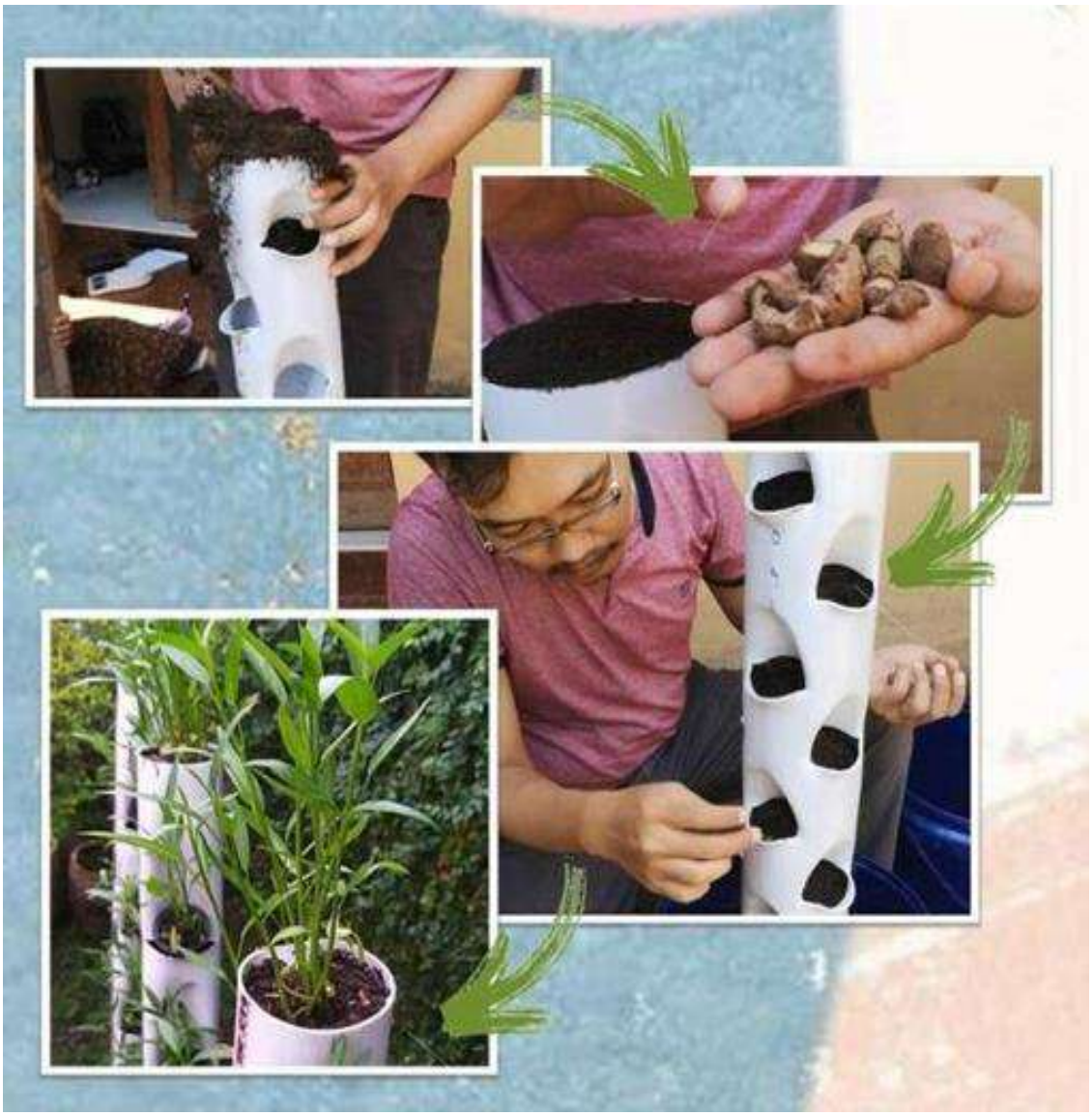

Figure 2.
Demonstration of the direct practice of family medicinal plants cultivation of verticulture techniques

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Activity Success. The difference in the characteristics of the participants according to the target audience can be seen in table 1.

Table 1.
Characteristics of community service participants

	Characteristics
Number of participants	7
Level of education	Senior High School = 4 (57,14%) College = 3 (42,86%)
Profession	Housewife = 2 (28,57%) Labor = 4 (57,14%) Office clerks = 1 (14,29%)
Gender	Female = 4 (57,14%) Male = 3 (42,86%)

The COVID-19 pandemic situation has limited these community service activities. According to government regulations, the Large-Scale Social Restriction condition is not allowed to create forums with more than 10 members. So that in the implementation of this community service program, it was only attended by 7 participants and 1 service representative. The gender of the participants who took part in this service activity was almost equal between the number of male and female participants, namely 3 male participants while 4 female participants. The highest level of education of the two groups of extension participants was high school graduates with jobs as laborers. This is by the target of community service activities, namely the creation of positive and productive activities that can be carried out by residents who can take advantage of their free time to cultivate family medicinal plants in their respective yards. Participants' participation in community service activities is shown by the presence and enthusiasm of the participants in participating in the entire event, as well as practicing family medicinal plant cultivation.

The benefit and level of acceptance of the participant's knowledge and techniques can be evaluated using the pre-test and post-test methods. This method was also carried out by Hadi et al. (2017) which argues that the application of cultivation techniques and education of various types of vegetables and their benefits can be carried out well and shows good results in terms of the results of the pre-test and post-test comparisons.

Based on the pre-test that has been done, most of the extension participants have planted family medicinal plants in their yard. Even so, their knowledge about the benefits of family medicinal plant plants is still limited, indicated by the wrong answers regarding the use of family medicinal plants. Therefore, this activity is still very relevant to the needs of the Rawamangun community, especially in terms of the benefits of family medicinal plants and proper cultivation techniques. The post-test results that

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were carried out after the counseling showed an increase in knowledge or understanding of the extension participants, especially regarding the types of family medicinal plants and their benefits as traditional medicine. This service activity was classified as successful because there was an increase in knowledge with an average score of more than 60, namely an average post-test score of 85 compared to when technology transfer had not been carried out from an average pre-test score of 65.7. Furthermore, a comparison graph of the pretest and posttest assessments is shown in figure 3.

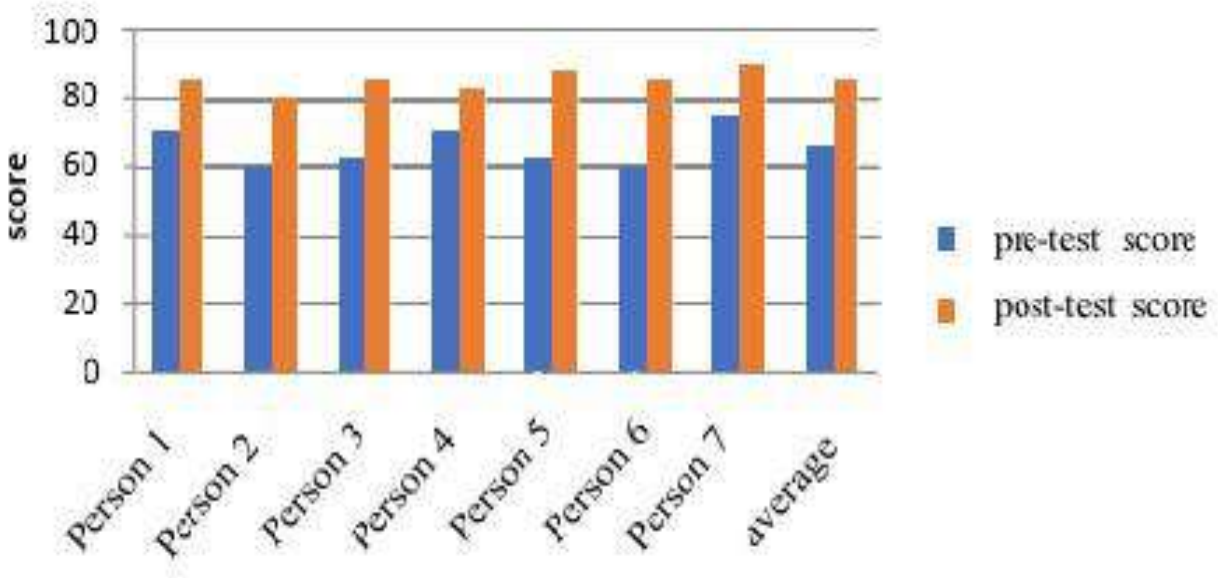

Figure 3.
Results of the Pretest and Posttest Assessments

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All activity participants showed high enthusiasm in carrying out a series of community service activities starting from making planting media, planting, and maintaining medicinal plants in their respective yards. A series of community service activities were carried out as an effort to increase the skills and interest of the residents to try to cultivate family medicinal plants in their respective home yards using the verticulture method. This type was chosen because it has clear objectives and benefits, is a simple form of activity, and can be applied in their respective yards at any time, and has good prospects to open business opportunities for family medicinal plant cultivation products. Herbal products that are ready for consumption are neatly packaged in plastic packaging with a product branding sticker attached so that they are ready to be marketed. The branding of herbal products from family medicinal plants cultivation can be seen in figure 4.

Figure 4.
Herbal product branding from family medicinal plants cultivation

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All documentation of community service activities, both photos, and videos, are broadcast on YouTube and Instagram social media. It is hoped that the documentation of community service activities can be utilized by a wider community. Snippets of YouTube and Instagram social media as a form of publication for community service activities can be seen in Figure 5.

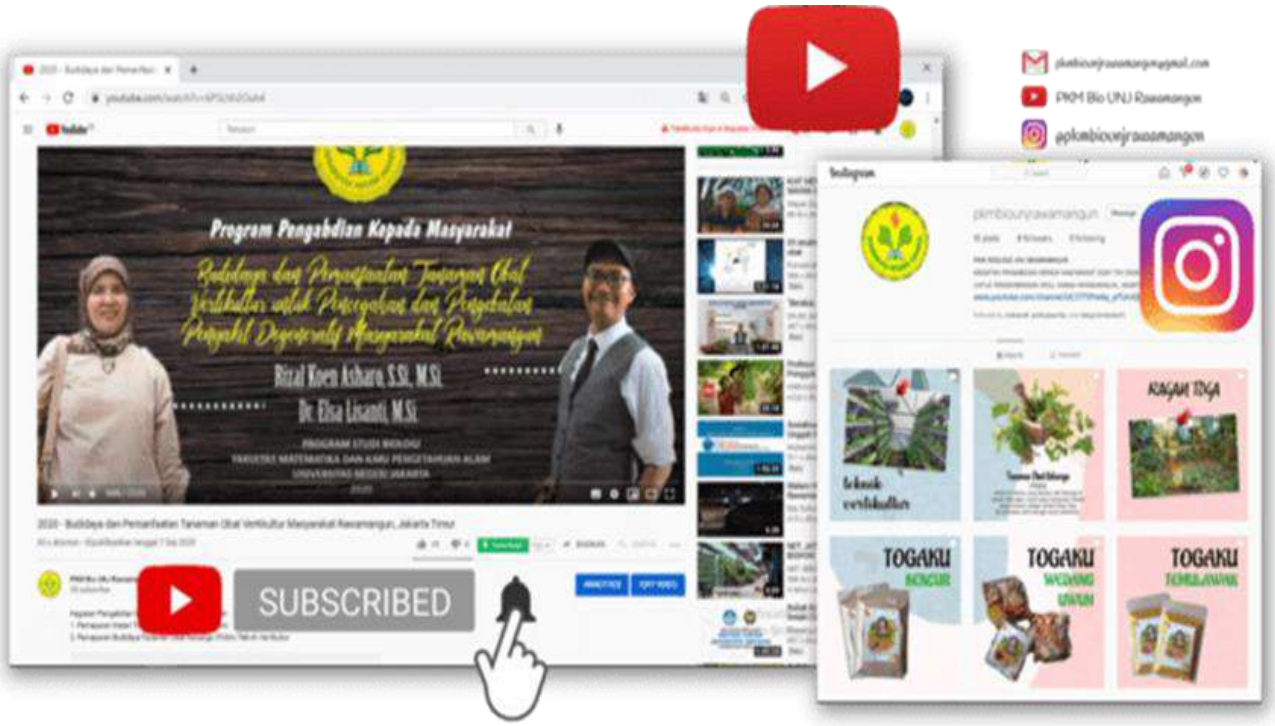

Figure 5.
Community service activities documentation on YouTube and Instagram

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CONCLUSION

The results of the implementation of the community service activities series of activities indicated that the participants were very enthusiastic about participating in all activities. Activity participants already have basic knowledge about the types, benefits, and techniques of family medicinal plant cultivation but they are still limited. Community service activities are classified as successful because there is an increase in knowledge with an average score of more than 60, namely the post-test average score of 85 compared to when technology transfer was not carried out from the pre-test average value of 65.7 and the demonstration of the direct practice of family medicinal plants cultivation using the method. verticulture. All participants demonstrated adequate skills when conducting hands-on demonstrations ranging from making planting media, planting, to maintaining medicinal plants in their yards. Furthermore, participants can make family medicinal plant cultivation products that can be consumed daily or sold to improve the family economy independently. The development of family medicinal plants using the verticulture method can improve the quality of the yards around where the activity participants live.

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ATTACHMENT

The following is a brochure regarding family medicinal plants cultivation using verticulture techniques as a literacy medium for both community service activities participants and non- community service activities participants.

Front Page View

Back Page View

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The following is a letter of willingness to broadcast the results of the community service activities documentation to the public either through social media or scientific articles that have been signed by representatives of community service activities participants.

Surat Kesediaan
untuk Penayangan Hasil Dokumentasi ke Publik

Sehubungan dengan Program Pengabdian kepada Masyarakat kami yang berjudul:

Budidaya Tanaman Obat Keluarga dengan Metode Vertikultur sebagai Upaya Pemanfaatan Lahan Pekarangan Sempit di Rawamangun, Jakarta Timur

Ketua Tim Pengabdi	: Rizal Koen Asharo, S.Si., M.Si.
Instansi	: Program Studi Biologi, FMIPA, Universitas Negeri Jakarta
Lokasi Pelaksanaan Program	: Rawamangun, Jakarta Timur
Waktu Pelaksanaan Program	: Agustus hingga Oktober 2020

Kami meminta kesediaan para peserta Program Pengabdian kepada Masyarakat untuk menyetujui hasil dokumentasi (foto dan video) untuk ditayangkan ke publik, baik di media sosial maupun di artikel ilmiah. Besar harapan kami hasil dokumentasi yang ditayangkan ke publik dapat memberikan manfaat informasi secara visual bagi masyarakat luas. Selanjutnya perwakilan peserta disepakati secara bersama diantara peserta untuk turut menandatangani Surat Kesediaan ini sebagai bentuk kesediaan penayangan hasil dokumentasi ke publik.

Jakarta, 31 Oktober 2020

Perwakilan Peserta PKM

Dwi Laksono Putro

Pihak Penyelenggara PKM

Rizal Koen Asharo, S.Si., M.Si.

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