

# Study of Profile of the Government Programs Implementation Germas and Traditional Medicine between Two Generations in a Rural Area

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## ABSTRACT

**Introduction:** The aim of the study was to discover the implementation of the government regulations, such as the healthy living community movements (GERMAS) and utilization of *jamu* (herbal medicine/traditional medicine) in village communities. **Methods:** The respondents in study were three groups: village cadres (they represented senior generation), junior high school students, and senior high school students (they represented young generation). All respondents were given the same questions, namely the frequency of eating vegetables and fruits; their favorite vegetable and fruit; knowledge of spices used as *jamu*. Especially, the senior group was given additional questions regarding what was their purpose in drinking *jamu* and how they got the *jamu*. **Results:** The total frequency of vegetable consumption for 3-7 days/week from three groups of respondents, namely village cadres, senior high school and junior high school students, were 98%, 88% and 68% respectively; the frequency of fruit consumption were 86%, 92% and 90% respectively. The favorite vegetable and fruit were *Ipomoea aquatica* and *Musa paradisiaca*, respectively. The knowledge regarding the benefits of spices as traditional medicine, the two spices were mostly known by all respondents were *Curcuma longa* and *Zingiber officinale*. The percentage knowledge for *Curcuma longa* were 32.47%, 23.81%, 23.45% respectively; and *Zingiber officinale* were 23.38%, 27.89%, 29.66% respectively. The purpose of drinking *jamu* for maintain health and knowledge to make *jamu* were 91% and 15.2%, respectively. **Conclusion:** Based on the results as previously described, the government regulations (Germas and use of *jamu*) in the village was continuous between the two generations.

**Keywords:** Vegetable consumption, Fruit consumption, Traditional medicine.

## INTRODUCTION

Development of public health is one of the targets of Indonesian government development programs, which is a targeted program from WHO/United Nation.<sup>1</sup> The WHO states that the involvement of local communities is important in implementing nutrition improvement programs. For this reason, social change in society is needed. The social change was encouraged which increase the people's knowledge, practices and creativity in nutritional improvements.<sup>1</sup>

To achieve a healthy Indonesian community, the government regulations have been introduced due to support the success of the program. The program was implemented with referring to several government programs, including the issuance of Regulation of The Minister of Health of The Republic of Indonesia Number 65 of 2013<sup>2</sup>, which refers to Long-Term National Development Plan (the National RPJP) of the health sector, for 2005-2025<sup>3</sup>, among other namely increasing the community's ability to help themselves in the health sector; and improving the nutritional status of the community.<sup>2</sup>

The WHO cares about good nutrition, because it becomes the basis of a good human life. Good nutrition is useful, among other things, for maintaining human well-being and health, including reducing disease.<sup>4</sup> Similar to WHO cares, the Minister of Health referring to the

long-term development goals in the health sector issued regulations concerning Guidelines for the Implementation and Development of Community Empowerment in the Health Sector. The intended results include increasing the community's ability to help themselves in the health sector; and improving the nutritional status of the community.<sup>2</sup>

Several participants who were representatives from countries took part in the International Scientific Symposium "Sustainable Diets and Biodiversity: United Against Hunger" explained that their indigenous fruits and vegetables which are part of their people's diet contain bioactive compounds (alkaloids, carotenoids, coumarins, flavonoids, saponins, tannins derivatives, etc.) which have properties for maintaining health.<sup>5</sup> One of several studies about benefits of vegetable and fruit for human body is a study on phytochemical/the bioactive content of raw red guava fruit (*Psidium guajava* L.) cultivated in Dukuhwaluh Village, Purwokerto, Central Java, Indonesia. Ethanol extract of guava fruits contained gallic acid (0.7661%), ellagic acid (1.3679%), rutin (0.4107%) and kaempferol (0.3478%), tannin 1.2% (TAE), and flavonoid 1.18% (RE).<sup>6</sup> Some of phytochemicals, such as rutin, gallic acid, kaempferol, ellagic acid and its derivatives, and also tannin were reported to have role in increase platelet number and blood clotting, and against dengue virus.<sup>6</sup> A study reported the ethanol extract of guava fruit plays a role in increasing the number of megakaryocytes in thrombocytopenic mice.<sup>7</sup>

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The Long-Term National Development Plan (the National RPJP) of the health sector, for 2005-2025 is divided into The Medium-Term National Development Plan (RPJM) which are timed every 5 years. Now the program has been running in the 4<sup>th</sup> year of RPJM, for this reason we are looking for the extent to which the program has been implemented for the next generation.<sup>3</sup>

To determine the transfer of knowledge from parents (mothers) to their children (next generation), a sample of village cadres was taken which represents the role of parents, where mothers have roles in managing nutrition and maintaining family health, and educate their children (represented by junior high school students, and high school students) as the next generation who will continue this education in their lives.<sup>8,9</sup>

## MATERIALS AND METHOD

### Study approval

The study regarding the transfer of knowledge of Gernas and traditional medicine implemented by the parents (mothers) given to their children (next generation) in Maruyung Village, Bandung Regency, West Java Province has received approval from the Health Research Ethics Commission, Faculty of Medicine, Universitas Padjadjaran, with No. 263/UN6.KEP/EC/2023.

### The study design

#### cross-sectional study design

##### Respondent criteria

Respondents in this study were divided into 3 groups namely: (1) Village Cadres; (2) Senior High School Students; and (3) Junior High School Students, in Maruyung Village.

##### Data collection

The interview including questions and answer choices is described below.<sup>10,11</sup>

Consumption vegetables was measured with the following questions

Vegetable consumption was measured using the question relating frequency they consumed vegetables in one week (7 days); and the types of vegetables which they mostly eat.

For this purpose, respondents were asked 2 questions.

1. Is your family served vegetables every week? How many days?

Answer: 1 day, 2, 3, 4, 5, 6, or 7 days.

2. What kind of vegetable is served to your family?

Answer: Please select the vegetables you eat from the following vegetable list.

Consumption fruits was measured with the following questions

Fruit consumption was measured using the question regarding frequency they consumed of fruits in one week (7 days); and the types of fruits which they mostly eat.

For this purpose, respondents were asked 2 questions.

1. Is your family served fruits every week? How many days?

Answer: 1 day, 2, 3, 4, 5, 6, or 7 days.

2. What kind of fruit is served to your family?

Answer: Please select the fruits you eat from the following fruit list.

Knowledge of cooking spices causing health benefits was measured with the following questions

The types of spices chosen to ask respondents were types of spices that are usually utilized for health, such as *Curcuma longa* L., *Zingiber officinale* Roscoe., *Cymbopogon citratus* Stapf., *Tamarindus indica* L., *Kaempferia galanga* L., and *Alpinia galanga* (L.) Swartz.

Especially for village cadres, additional questions were given to find out the profile of herbal medicine use in their families.

For this purpose, respondents were asked 3 questions.

1. This question was to find out whether the respondent still drinks herbal medicine

Do you like drinking herbal medicine?

Answer: "Yes" and "No"

If the question is answered "Yes", then continue to questions 2 and 3.

2. This question was to find out what the respondent hopes/purposes for drinking herbal medicine.

What is the purpose of drinking herbal medicine?

Answer: 1. tradition/custom (tradition without a purpose); 2. maintain health; 3. treating disease;

3. This question was to determine the respondent's knowledge of concocting *jamu* and herbal medicine products which are used by respondents.

Where did you get the herbal medicine?

Answer: 1. from the *jamu* seller, such as *jamu gendong*; 2. made by herbal medicine factory; 3. mix it yourself.

### Study limitations

The body mass index (BMI) is a parameter to decide underweight, overweight and obesity.

In this study BMI was not measured; regarding underweight, overweight and obesity have been recorded in the Basic Health Research (RisqueDas).

The variety of vegetables and fruits is very large also depending on the season or what is sold in the market. Therefore, only a few vegetables and fruits were selected for questions.

## RESULT

The number of subjects<sup>11,12</sup>

$$n = 0.25 \left\{ \frac{1.96}{0.1} \right\}^2 = 100$$

n = total minimum sample

0.25 = Traditional Health Service is determined from the use of family medicinal plant (TOGA).

The proportion was 24.6%.

1.96 = standard deviation from the table.

0.1 = error 10 %

Based on the equation above the total number of respondents were 100 people, therefore, the number of respondents for each group was between 33-34 respondents.

This study involved 150 respondents, each group consisted of 50 respondents namely village cadres, senior high school students, and junior high school students.

Women in particular have a fundamental role in managing the improvement of nutritional status for everyone in their family, and in general play a role in improving health development in their regions.

The mothers play other more roles: a family manager, an educator, family motivator, family doctor, a nurse, a psychologist for children and families, a cook, protector, role model, friend, and the other roles.<sup>8,9</sup> One of the mother's roles is as an educator for family members. The meaning of educator in this context is that a mother transfers all her best efforts for the family to her child. The child is closer to the mother. Therefore, mothers instill education in their children from an early age. Mothers also understand the child's character best, so that they are able to provide appropriate education.<sup>8,9</sup>

Based on the role of mothers as explained above, a sample of village cadres was taken which represents the role of parents, where mothers act as educators.

According to WHO, young people was represented by the age ranging 10-24 years.<sup>13</sup> According to USAID youth/young people was represented by the age ranging 10-29 years; the age ranging 10-29 year was divided again became early adolescence (10-14); adolescence (15-19); emerging adulthood (20-24); and transition to adulthood (25-29).<sup>14,15</sup>

Based on the definition above, the young respondent group was represented by junior high school students aged 14 years that represented of early adolescence, and high school students aged 17-18 years that represented of adolescence. Likewise, with the mother's role as an educator to her child and young people by WHO and USAID, the types of respondents in the study of knowledge transfer from senior generation to young generation was represented by village cadres as senior generation, and senior high school students and junior high school students as young generations.

The parameters knowledge transfer was represented by the same questions for them Frequency of vegetable and fruit consumption in a week are as follows

The results of respondents answered regarding the frequency of vegetable and fruit consumption in a week are as follows.

Table 1 showed the patterns of eating vegetables frequency in a week: senior respondents (village cadres) were 3 days (30%), 4 days (28%), 7 days (20%), 5 days (18%), and 6 days (2%); These results showed that the patterns of eating vegetables at least 3 days to 7 days a week for senior respondents (village cadres) reached 98%. The frequency patterns for the young generation (Senior high school students) were 4 days (28%), 5 days (24%), 3 days (16%), 7 days (14%), and 6 days (6%); These results showed that the patterns of eating vegetables at least 3 days to 7 days a week for senior high school students reached 88%. The frequency patterns for the young generation (Junior high school students) were 3 days (26%), 4 days (18%), 7 days (10%), 5 days (8%), and 6 days (6%); These results showed that the vegetable eating patterns of junior high school students were at least 3 days to 7 days a week for junior high school students reaching 68%.

**Table 1: Frequency of vegetable consumption of village cadres, senior high school students and junior high school students.**

Frequency of vegetable consumption in a week (day)	Frequency percentage of vegetable consumption by respondents in a week (%)		
	Village cadres	Senior high school students	Junior high school students
1	0	0	4
2	2	12	28
3	30	16	26
4	28	28	18
5	18	24	8
6	2	6	6
7	20	14	10

**Table 2: Frequency of fruits consumption of villa cadres, senior high school students and junior high school students.**

Frequency of fruit consumption in a week (day)	Frequency percentage of fruit consumption by respondents in a week (%)		
	Village cadres	Senior high school students	Junior high school students
1	0	0	0
2	14	8	10
3	28	16	24
4	22	24	26
5	20	26	22
6	4	8	4
7	12	18	14

In general, the frequency of eating vegetables in one week can be arranged like this, senior generation (village cadres) 98%, young generation namely senior high school students 88% and junior high school students 68%. Thus, it appears that the pattern of frequency of eating vegetables from the senior generation to the junior generation is decreasing.

Table 2 showed the patterns of eating fruit frequency in a week: senior respondents (village cadres) were 3 days (28%), 4 days (22%), 5 days (20%), 7 days (12%) and 6 days (4 %); These results showed that the patterns of eating fruit at least 3 days to 7 days a week for senior respondents (village cadres) reached 86%. The frequency patterns for the young generation (Senior high school students) were 5 days (26%), 4 days (24%), 7 days (18%) and 3 days (16%), 4 days (8%); These results showed that the patterns of eating fruit at least 3 days to 7 days a week for senior high school students reached 92%. The frequency pattern for the young generation (Junior high school students) were 4 days (26%), 3 days (24%), 5 days (22%), 7 days (14%), and 6 days (4%); These results showed that the fruit eating patterns of junior high school students were at least 3 days to 7 days a week for junior high school students reaching 90%.

In general, the frequency of eating fruit in one week can be arranged like this, senior generation (village cadres) 86%, young generation namely senior high school students 92% and junior high school students 90%. Thus, it appears that the pattern of fruit eating frequency between the two generations has not decreased.

### Types of vegetables and fruit that the respondents liked

The results of respondents who answered the questions regarding the vegetable and fruit that they liked as follows.

Figure 1 showed the vegetables that the respondents liked. The three groups of respondents stated that *Ipomoea aquatica* Forsskål was the vegetable they liked most with the following percentage description: senior respondents (village cadres), junior respondents, namely senior high school students and junior high school students were 7.25%, 9.63% and 10.26%, respectively.

*Ipomoea aquatica* Forsskål has nutritional content as follows vitamin A, vitamin C, Fe compound, protein, calcium, phosphor, fiber, beta-caroten, etc.<sup>16</sup> iron and vitamin C<sup>17</sup>, and has roles in jaundice, bronchitis, fever, etc.<sup>18</sup> The methanol extract has activities as CNS depressant and antiepileptic.<sup>19</sup>

Other vegetables certainly have benefits for the body, because they have nutritional content and phytochemical content which are beneficial for health.

Figure 2 showed the fruit that respondents like. All groups of respondents stated that *Musa paradisiaca* L. was the fruit they liked most with the following percentage description: senior respondents (village cadres), junior respondents, namely senior high school students and junior high school students were 8.5%, 6.68% and 6.51%, respectively.

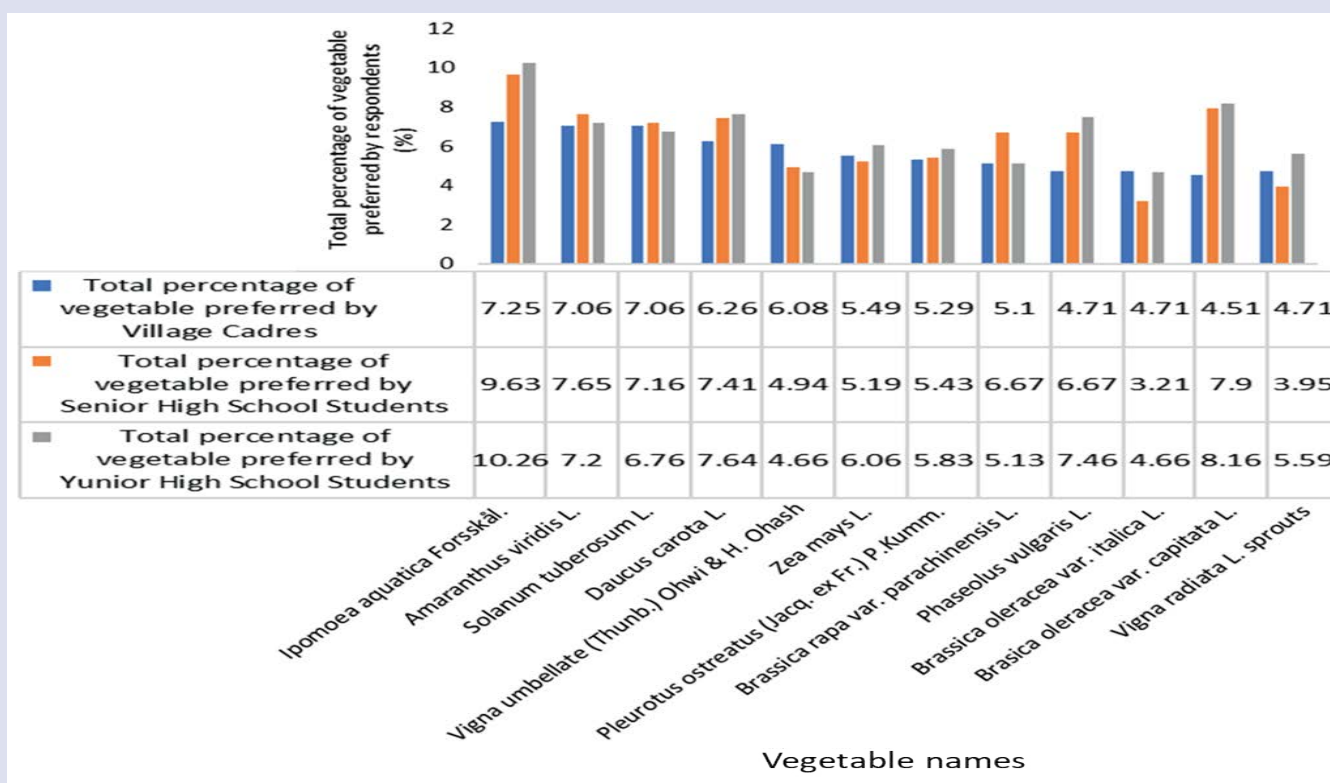


Figure 1: Percentage of vegetable that the respondents liked.

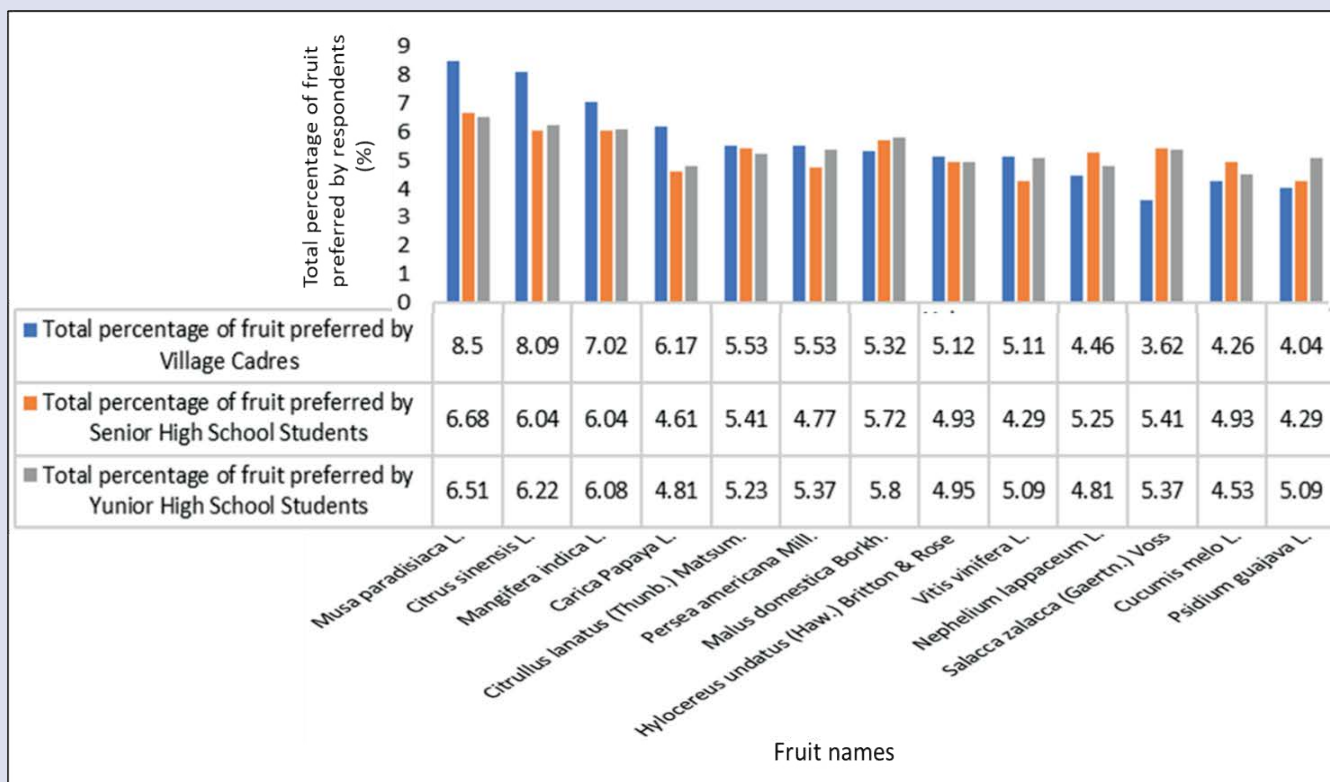


Figure 2: Percentage of fruit that the respondents like.



*Musa paradisiaca* L. has nutritional/phytochemical content carbohydrates, flavonoids, phenols, terpenoids, tannins, steroids, etc. The pharmacological reviews reported *Musa paradisiaca* L. has activities such as antidiabetic, antioxidant, antiulcerogenic, hypotensive, antimicrobial, anti-angiogenic, anti-inflammatory, antiasthmatic, hepato and nephroprotective, etc.<sup>20</sup>

Likewise, other fruits certainly have benefits for the body, because they have nutritional content and phytochemical content which are beneficial for health.

### Knowledge of spices that can be used as traditional medicine

The results of respondents answered questions regarding their knowledge about spice as traditional medicine as follows

The types of spices that are the topic to determine respondents' knowledge about the use of spices as traditional medicine are based on the use of family medicinal plants (TOGA) reported in Basic Health Research (Risesdas) in 2010. These types of spices are also ingredients commonly used to make *jamu* as herbal medicine (is called *jamu gendong*) and sold around the community.

The benefits of these spices as traditional medicine have been recorded in several traditional medicine formula books.

*Curcuma longa* L. was reported to be found in concoction for dyslipidemia, gastritis, hepatoprotector.<sup>21</sup> It was also to be found in concoction for gout/rheumatic pain, back pain, fatigue, flatulence, eczema, etc.<sup>22</sup> and to be used in traditional medicine for leucorrhea<sup>23</sup>, gout<sup>24,25</sup>, relieve liver problem, reduce blood cholesterol, maintain the health conditions of cancer patients, reduce hypertension<sup>25</sup>, infection of the urinary system.<sup>26</sup> Other sources had no data for the uses of *Curcuma longa* L. in traditional medicine, but they showed data for its uses supported by experimental/clinical data namely the rhizome is an antiinflammatory, antipeptic for ulcer, antispasmodic, antibacterial, antiyeast, antifungal, antiparasitic, and it has immunological, hypocholesterolemic, mutagenic activities, etc.<sup>26</sup>

*Zingiber Officinale* Roscoe was reported to be found in concoction for antiemetics, gastritis, arthritis.<sup>21</sup> It was also to be found in concoction for gout/rheumatic pain, flatulence, colds, nausea and vomiting. Likewise, it was reported in traditional medicine using as carminative and stimulant, rheumatism, coughs, colic, nausea, etc.<sup>22</sup> cough.<sup>24</sup>

*Cymbopogon citratus* Stapf was reported to be found in concoction for arthritis and gout/rheumatic pain.<sup>24</sup> From fresh leaves, essential oil is obtained which contains the compounds of geranial, beta-pinene, etc. In traditional medicine it is used for emmenagogue, a mild diuretic and tonic, and kidney problems treatment. The essential oils are used for gastric irritability, flatulence, rheumatism, vomiting, etc.<sup>26</sup>

*Kaempferia galanga* L. was reported to be found in concoction for analgetic-antipyretic<sup>21</sup>, migraine, sprains, and gout/rheumatic pain<sup>22</sup>, help to relieve diabetes mellitus, leucorrhea<sup>23</sup>, gout and cough.<sup>24</sup>

*Alpinia galanga* (L.) Swartz. was reported to be found in concoction for sprains, ringworm, tinea versicolor, etc.<sup>22</sup> Also, it was reported in traditional medicine which is advantageous for vomiting, indigestion, diarrhea, ringworm, headache, colic, flatulence, borborygmus, etc. Its uses in traditional medicine was supported by experimental/clinical data showing antifungal activity against *Epidermophyton floccosum*, *Trichophyton rubrum*, *T. mentagrophytes*, and other gram-positive and gram-negative bacteria.<sup>26</sup>

In traditional medicine it was used for ringworm, headache, fever, borborygmus, etc.<sup>26</sup>

The number of respondents who drank herbal medicine was 33 respondents out of 50 respondents (villa cadres).

**Table 3: Respondents knowledge relating the benefit of spices as traditional medicine.**

Spices	Percentage of respondent knowledge regarding the benefits of spices as traditional medicine (%)		
	Village cadres	Senior high school students	Junior high school students
<i>Curcuma longa</i> L.	32.47	23.81	23.45
<i>Zingiber officinale</i> Roscoe	23.38	27.89	29.66
<i>Cymbopogon citratus</i> Stapf	14.29	12.93	5.52
<i>Tamarindus indica</i> L.	12.98	14.96	22.06
<i>Kaempferia galanga</i> L.	10.39	14.97	17.24
<i>Alpinia galanga</i> (L.) Swartz.	6.49	5.44	2.07

**Table 4: The purpose of the respondents drinking jamu (herbal medicine).**

The purpose of drinking jamu (herbal medicine)	Percentage of utilization
Tradition without a purpose	0
Maintain of health	91
Cure disease	9

**Table 5: The sources of jamu/herbal medicine taken.**

No.	Source of jamu	Percentage of utilization
1	<i>Jamu gendong</i>	54.5
2	Herbal medicine produced by a factory	18.2
3	Herbal medicine made by yourself	15.2
4	Factory-made (no.2) and self-made (No.3)	12.1

Table 4 showed all respondents who drank herbal medicine had a purpose: 91% to maintain health, 9% to treat disease, and none of the respondents stated that drinking herbal medicine was a tradition without a purpose. However, their tradition of drinking herbal medicine passed down from their families has a purpose for bodily health. This indicates that respondents knew the benefits of herbal medicine for health. In addition, this knowledge is in line with the Germas, Bude Jamu and other government regulations which were introduced with the main goal in achieving health for all Indonesian people.

### Type of herbal medicine consumed/utilized

Table 5 showed the sources of respondents obtaining herbal medicine. From these data it can be seen that several respondents have expertise and habit in concocting herbal medicine for their family consumption. The data showed that several respondents had the expertise in making herbal medicine.

The implementation of the government program Healthy Community Movement (Germas) and Fit with Jamu (Bude) can be seen in Table 4. The senior respondents (village cadres) have a tradition to maintain fitness and health by drinking herbal medicine and in table 5 it can be seen that several senior respondents still maintain their skills in making herbal medicine which is the legacy of their ancestors of the Indonesian people.

The aim of the study is to know the success of the community in accepting and passing knowledge of Germas and traditional medicine in an effort to move towards a healthy Indonesia. For this reason, 3 groups of respondents had been formed representing two different generations, namely the senior generation represented by village cadres and the young generation as the next generation. The young generation was divided by 2 groups, namely the group of senior high school

students aged 17-18 years representing the adolescent group and the group of 14 year old junior high school students representing the early adolescence group.

Result from the answered questions by the three groups of respondents regarding the patterns of eating vegetables frequency between the senior generation to the junior generation, the results show a decrease. The results relating the patterns of eating fruit frequency between the two generations do not show a decrease.

The vegetables and fruits most liked by all respondents were *Ipomoea aquatica* Forsskål and *Musa paradisiaca* L., these vegetables and fruits were abundantly available. Knowledge about the use of spices as traditional medicine, the two groups recognized that spices have benefit as traditional medicine. For certain questions regarding the group representing the senior generation, it showed that they had the habit of using herbal medicine for health and among them there were respondents who formulate herbal medicine according to their knowledge.

## CONCLUSION

With the results of the study as described above, it can be concluded that the regulation launched by the government to improve public health via both the GERMAS and herbal medicine consumption has been being implemented well among the two generations.

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## CONFLICTS OF INTEREST

No conflicts of interest in our study.

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