

# Interest of Public Health Science Students of State University of Malang to Work in Remote Areas, Borders, and Islands

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ARTICLE INFO	ABSTRACT
<b>ORCHID ID</b> Author 1: - Author 2: <a href="http://orcid.org/0000-0002-0341-1302">http://orcid.org/0000-0002-0341-1302</a> Author 3: -	The health workforce distribution in Indonesia still needs to be balanced, especially in border areas and islands (DTPK), with no exception for public healthcare workers. This study aimed to determine the interest of public health science students in working in remote areas and the factors associated with the interest of public health science students to work in remote areas. This study design was cross-sectional, and a total sampling method was used. The subjects were final-year students majoring in Public Health Science at the State University of Malang. The dependent variable was the interest of public health science students to work in remote areas. Independent variables included personal input, background environment, and student self-efficacy. Data were analyzed univariate and bivariate using Goodman and Kruskal Tau tests. The result showed that from 79 respondents, 44.3 percent of students were interested in working in remote areas, and 5.1 percent had high self-efficacy to work in remote areas. The factor related to student interest in working in remote areas is the self-efficacy variable ( $p$ is 0.000). Most students are not interested in working in rural areas, and self-efficacy is associated with student interest in working in rural areas.
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## 1. Introduction

The issue encountered by the Indonesian Healthcare System is the uneven distribution of healthcare workers. In 2019, the Indonesian Health Profile mentioned that there were 1,182,024 human healthcare resources (SMDK), and most of these resources are distributed in Java Island, particularly in the East Java Province, with 13.38% (158,128 healthcare workers). It is the opposite of the number of healthcare resources in the West Sulawesi Province, which accounts for only 0.44% (5,249 healthcare workers) (Kemenkes RI, 2020).

Law No. 36 of 2014 on Healthcare Workers Article 11 mentions that public healthcare workers are included in the healthcare worker group (Presiden RI, 2014). In 2019, based on data from the Health Human Resource Development and Empowerment Agency (PPSDM), there were 28,459 public healthcare workers, and most were distributed in Java Island. There were 2,308 workers in West Java, 1,899 in Central Java, and 1,806 in East Java. It contrasts the North Kalimantan Province, which only has 206 workers (Badan PPSDM Kesehatan, 2019). Risnakes data in 2017 revealed that 24% of public health centers (puskesmas) lacked public healthcare workers (Kemenkes RI, 2018b). Also, although the government has placed

healthcare workers in remote areas through the Nusantara Sehat Program, 33% of puskesmas in remote areas still have no public healthcare workers (Nurlinawati & Putranto, 2020).

The number of Indonesian healthcare workers continues to rise. However, its distribution is insufficient to fulfill healthcare service needs in several areas, primarily remote areas, borders, and islands (Kemenkes RI, 2018a). Remote areas, borders, and islands (DTPK) are regencies in which their people and regions are relatively underdeveloped than other regions on the national scale. The existence of socioeconomic, cultural, and regional government policy disparities, augmented by hard-to-reach geographical conditions, explains the small number of health workers interested in working in remote areas (World Health Organization, 2011).

The East Java Province has regions categorized as remote areas, i.e., Bondowoso, Situbondo, Bangkalan, and Sampang Regencies. Of 1806 public healthcare workers in East Java, only 160 people work in those regions. Public healthcare workers in East Java are insufficient, as seen in 309 puskesmas out of 968 that have no public healthcare workers (Badan PPSDM Kesehatan, 2019).

Maldistribution occurs due to the scarce number of healthcare workers interested in serving rural and remote areas, while a sufficient number of healthcare workers is highly required to provide quality services to improve the public health level (Firdaus et al., 2019). The government must plan a system that encourages students to be willing to work in remote areas. If they have no interest, it is very likely for the maldistribution to continue (Majid et al., 2019). In 2019, there were 1,182 public health graduates in East Java (Kemenkes RI, 2020). It is expected for such a number to fulfill 309 positions in puskesmas in East Java with an insufficient number of public healthcare workers, especially in remote areas of East Java.

Research concerning the interest of healthcare graduates to work in remote areas are abundant. However, they are limited to doctors, pharmacists, and nurses (Fadilah et al., 2019; Firdaus et al., 2019; Majid et al., 2019). Therefore, the researchers would like to examine public healthcare workers' interest in remote areas, borders, and islands and the factors affecting public health graduates' interest in remote areas, borders, and islands.

## **2. Method**

The study is a quantitative study using a cross-sectional approach. The dependent variable was the interest of public health science students to work in DTPK, while the independent variables were personal input, environmental background, and self-efficacy of public health science students to work in DTPK.

The study was conducted online using a Google form distributed via personal chats to each respondent using the WhatsApp application. The study population was all students of the Public Health Department of the State University of Malang, class of 2017. The study samples used a total sampling, amounting to 79 students. A questionnaire was utilized as the study instrument. It comprises four sub-sections acquired and modified from previous research, consisting of describing the dependent variable, i.e., student interest to work in DTPK, and independent variables, i.e., personal input, environmental background, and self-efficacy.

Study data analyses were performed using univariate and bivariate techniques. Data processing was conducted using the SPSS 22 computer program. The tests were Goodman and

Kruskal Tau tests. The univariate analysis aimed to discover the percentage of public health science students interested in working in DTPK, personal input, environmental background, and self-efficacy. Analysis results were presented in a frequency distribution table. The bivariate analysis aimed to observe the relationship between personal input, environmental background, and self-efficacy variables toward student interest in working in DTPK. The study has surpassed the Ethical Test with Reg. Research Ethics No:250 / KEPK-POLKESMA/ 2021

### 3. Result and Discussion

#### 3.1 Univariate Analysis Results

Table 1 shows that less than 15% of Public Health Department students, class of 2017, were male, where 94.9% were Islam, and 86.1% were Javanese.

**Table 1. Univariate Analysis Results of Respondent Characteristics**

<b>Respondent Characteristics</b>	<b>Frequency (n)</b>	<b>Percentage %</b>
<b>Personal Input</b>		
<b>Gender</b>	11	13,9
Male	68	86,1
Female		
<b>Religion</b>		
Islam	75	94,9
Christian	3	3,8
Catholic	1	1,3
<b>Ethnicity</b>		
Javanese	68	86,1
Sundanese	2	2,5
Bataknese	3	3,8
Maduranese	4	5,1
Banjarnese	1	1,3
Others	1	1,3
<b>Study Program</b>		
Health Policy Administration	10	12,7
Epidemiology	10	12,7
Health Promotion	10	12,7
Environmental Health	10	12,7
Reproduction Health	10	12,7
OHS	10	12,7
Science of Nutrition	9	11,4
Biostatistics	10	12,7
<b>Workplace Preference</b>		
Public Health Office	50	63,3
Hospital	12	15,2
Public Health Center	3	3,8
NGO	5	6,3
Others	9	11,4
<b>Environmental Background</b>		
<b>Paternal Education</b>		
Primary School	8	10,1
High School	37	46,8
Higher Education	34	43

Respondent Characteristics	Frequency (n)	Percentage %
<b>Maternal Education</b>		
Primary School	6	7,6
High School	47	59,4
Higher Education	26	32,9
<b>Paternal Occupation</b>		
Entrepreneur	26	32,9
Private	17	21,5
Civil Servant	23	29,1
Unemployed	3	3,8
Others	10	12,7
<b>Maternal Occupation</b>		
Entrepreneur	16	20,3
Private	11	13,9
Civil Servant	8	10,1
Unemployed	43	54,4
Others	1	1,3
<b>Healthcare-Based Parents' Occupation</b>		
Yes	4	5,1
No	75	94,9
<b>Parents' Income</b>		
< Rp. 1.500.000	9	11,4
Rp. 1.500.000 - Rp. 3.000.000	21	26,6
> Rp. 3.000.000	49	62
<b>Self-Efficacy Category</b>		
High	4	5,1
Low	44	55,7
Moderate	31	39,2
<b>Working Interest in DTPK After Graduating</b>		
Interested	35	44,3
Not Interested	44	55,7

Source: Primary Data, 2020

The study program distribution of Public Health Department students, class of 2017, was even at 12.7%, except for the science of the nutrition study program at 11.4%. The most preferred workplace was Health Office (63.3%). A total of 46.8% of respondents' fathers were high school graduates, while 59.4% of the mothers were high school graduates. A total of 32.9% of respondents' fathers worked as entrepreneurs, 54.4% of the mothers were unemployed, and less than 6% of the parents worked in healthcare fields. Sixty-two percent of respondents' parents had a monthly income of > Rp3,000.000. The self-efficacy calculation result showed that 55.7% of students were categorized in the low category, and most students (55.7%) were not interested in working in DTPK after graduating. Table 2 shows that, out of 79 students, no students were ready to work in remote areas.

**Table 2. Self-Efficacy Percentage Results of Public health science students from 79 Respondents**

Statement	Highly Not Confident	Slightly Confident	Moderate Confidence	Relatively Confident	Highly Confident
I am ready to work in DTPK	7,59%	24,05%	31,65%	36,71%	0,00%
I can communicate effectively with other staff in DTPK	2,53%	18,99%	37,97%	34,18%	6,33%
I can implement my knowledge if I work in DTPK	0,00%	10,13%	35,44%	43,04%	11,39%
I have sufficient skills to provide excellent services to the people in DTPK	1,27%	10,13%	45,57%	34,18%	8,86%
I can make appropriate work planning according to my job with limited facilities in DTPK	1,27%	11,39%	39,24%	37,97%	10,13%
I can manage my job in DTPK facilities	0,00%	11,59%	34,78%	39,13%	14,49%
I am willing to leave my family to work in DTPK	16,46%	29,11%	37,97%	12,66%	3,80%
I am willing to leave my friends to work in DTPK	2,53%	12,66%	25,32%	40,51%	18,99%
I can work outdoor (on site)	1,27%	3,80%	11,39%	51,90%	31,65%
I can live without electricity	35,44%	34,18%	25,32%	3,80%	1,27%
I can live without the Internet	31,65%	32,91%	24,05%	11,39%	0,00%

Source: Primary Data, 2020

Only 6.33% were confident they could build effective communication with other staff in remote areas, and 10.13% were confident in creating excellent work planning with facilities in remote areas. Table 2 also reveals that students were highly confident in several other items, such as managing the job with available facilities in remote areas (14.49%), leaving friends to work in remote areas (18.99%), and working outdoors on-site (31.65%).

### 3.2 Bivariate Analysis Results

Table 3 show about the bivariate analysis shows that self-efficacy had a relationship with working interest in DTPK at the 95% confidence level.

**Table 3. Test Results of Personal input, Environmental Background, and Self-Efficacy Analyses of Students with Working Interest in DTPK**

Variable	Test Statistics	Test Statistics Values	p-value
<b>Personal input</b>			
Gender	Goodman and Kruskal Tau	0.019	0.223
Religion	Goodman and Kruskal Tau	0.18	0.499
Ethnicity	Goodman and Kruskal Tau	0.048	0.582
Study Program	Goodman and Kruskal Tau	0.134	0.166
Workplace Preference	Goodman and Kruskal Tau	0.036	0.586
<b>Environmental Background</b>			
Paternal Occupation	Goodman and Kruskal Tau	0.048	0.441
Maternal Occupation	Goodman and Kruskal Tau	0.023	0.769
Healthcare-Based Parents' Occupation	Goodman and Kruskal Tau	0.001	0.815
Paternal Education	Goodman and Kruskal Tau	0.036	0.441
Maternal Education	Goodman and Kruskal Tau	0.05	0.559
Parents' Income	Goodman and Kruskal Tau	0.002	0.935
<b>Self-efficacy (Category)</b>	Goodman and Kruskal Tau	0.198	0.000

Source: Primary Data, 2020

It is marked by the p-value on the self-efficacy variable  $< 0.05$  ( $p=0.008$ ). Meanwhile, gender ( $p=0.223$ ), religion ( $p=0.499$ ), ethnicity ( $p=0.582$ ), study program ( $p= 0.166$ ), workplace preference ( $p=0.586$ ), paternal occupation ( $p=0.441$ ), maternal occupation ( $p=0.769$ ), healthcare-based parents' occupation ( $p=0.815$ ), paternal education ( $0.441$ ), maternal education ( $p=0.559$ ), and parents' income ( $p=0.935$ ) had no significant relationship with working interest in DTPK.

The proportion of public health science students having no interest in working in remote areas was 55.7%. It aligns with a study conducted on final-year graduate and postgraduate students at the University of Health Science in Laos, where most students (42.1%) had no interest in working in remote areas after graduating (Theppanya et al., 2014). A study on nursing students in Surabaya, East Java, also demonstrated the same proportion, where 59.9% of nursing students in Surabaya were reluctant to work in rural areas (Firdaus et al., 2019). A study on fourth- and fifth-year medical students at Universitas Indonesia also found that only 8.7% of 309 students were willing to work in remote areas after graduating (Syahmar et al., 2015). It illustrates the reluctance of public health science students and other health professional students to work in remote areas.

A precedent study explained that self-efficacy is related to the increasing interest of students in working in remote areas (Isaac et al., 2015). From the analysis results performed in this study, a factor related to the interest of public health science students to work in remote areas was self-efficacy. Students with high self-efficacy tend to be more intrigued to work in remote areas than those with low self-efficacy. Students with high self-efficacy were 3.3 times more willing to work in remote areas (Theppanya et al., 2014). It is because interest grows following a belief in one's self-capacity to handle challenging situations with limited access. When one believes they can work and live independently in remote areas, they will intend to do it (Theppanya et al., 2014).

The study mentions that most public health science students had low self-efficacy. Therefore, their interest in working in remote areas is also low. A study conducted by a physiotherapist showed that low self-efficacy among Australian physiotherapists caused doubts about self-skills during practice (Jones, 2014). Also, the self-efficacy improvement of students will augment their interest in working in remote areas. A study on medical students in Australia demonstrated improved students' self-efficacy after having practiced learning in remote areas, and more than 80% of students increased their interest in working in remote areas (Isaac et al., 2015).

Student residential background also plays a vital role in affecting student interest to work in remote areas (Johnson et al., 2018). A predecessor study asserted that students from rural areas were more willing to work in remote areas (Walker et al., 2012). It is because they grew up in remote areas. Experiences in rural areas can strongly motivate their working interest after graduating (Playford et al., 2017). Furthermore, healthcare facility disparity in remote areas and incentives for healthcare workers must be considered as a factor to encourage students to work in remote areas. It is also necessary to have transportation modes to allow healthcare workers to cover the public effectively (Suharmiati, Lestari Handayani, 2012). Thus, the government, together with healthcare institutions, must develop healthcare infrastructure in remote areas and scholarships to provide a better learning opportunity for students from remote areas without being burdened by costs as a means to increase the number of healthcare workers in remote areas (Budhathoki et al., 2017).

#### 4. Conclusion

Based on the study, it can be concluded that most public health science students of the State University of Malang, class of 2017, are not interested in working in DTPK after graduating. The factor with a significant relationship with student interest in working in remote areas is self-efficacy. It is valuable to have lessons that allow students to have more practice in rural areas to improve their self-efficacy, which will improve student interest in working in remote areas and fulfill the need for healthcare professionals in remote areas. Moreover, the researchers suggest that the management of the Public Health Department provides career preparation activities for final-year students to motivate prospective graduates to work in challenging areas.

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